# THE FINANCIAL Analysts Journal

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MARCH-APRIL 1960

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### IN OUR MAY-JUNE ISSUE

Stock Values and Stock Prices by Nicholas Molodovsky, well-known Wall Street economist and Associate Editor of The Journal, will discuss methods of valuation and pricing of common stocks. Part I will cover Investment Values. Part II will appear in our July—August issue. Also, The Valuation of British Securities will be authoratively presented by Werner S. Schott, foreign securities specialist.

One look at today's growing America, and you know tomorrow will be even greater. That promise is already locked in an evergrowing population, in new demands for new and better services.

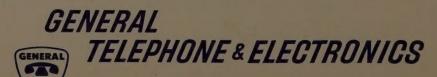
AND THE KEY? It will be—as always—an ingenious turn in a man's mind.

This is why we have a staff of highly trained scientists and engineers constantly at work

in our research laboratories from coast to coast.

These are the men and women who are creating the new products and new services that will enable us to help industry supply America's ever-new demands. Not to mention a variety of capabilities in national defense as well.

Only by investing in tomorrow *today* can we continue to serve a growing America.



730 Third Avenue, New York 17





# CELANESE CREATES NEW SYNTHETIC LUBRICANT FOR HIGH TEMPERATURE JET ENGINES

Celanese has developed a new synthetic lubricant designed for use in future aircraft which will fly at many times the speed of sound. This new lubricant is effective at oil reservoir temperatures from  $-65^{\circ}$ F to  $+425^{\circ}$ F.

This product resists breakdown at extremely high engine temperatures and will operate at 100 degrees higher than the maximum permissible for previous products.

Celanese is currently delivering another one of this series of lubricants for use in existing Air Force supersonic jets. Both were developed in a joint effort by Celanese and the Air Research and Development Command.

These new man-made lubricants, "Cellutherms," are part of a group of fire-resistant and heat-resistant lubricants and hydraulic fluids created by Celanese to meet the needs of industry for safe and efficient operation of critical machinery. They are examples of Celanese chemical research and production which continue to provide industry with material for improved products and processes. For complete technical information on Cellutherms write to Celanese Corporation of America, N. Y. 16.

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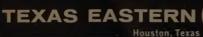




# MORE ENERGY... IN MORE FORMS... FOR AMERICA'S GROWING NEED

Space Age steelmaking requires the intense, controlled heat of natural gas flames. Piping that gas is one of Texas Eastern's big jobs... and it's getting bigger. Demand for the new steel alloys is climbing—like the rockets and jet engines that use them.

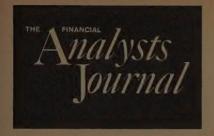
Today, America's need for energy of all kinds is zooming. That's why Texas Eastern plans far ahead as it diversifies in the field of energy supply and enlarges its role as Pipeliner of Energy to the Nation.





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Shreveport, Louisiana



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# Wanted: A Balanced Mixture of Analytical Techniques

By ROY S. HEAVNER

Director and Vice President, Templeton, Dobbrow & Vance, Inc.

. . . These historical considerations should make us chary of believing too exclusively in any single theory of art. One kind of painting, one set of ideas are fashionable at any given moment. They are made the basis of a theory which condemns all other kinds of painting and all preceding critical theories. The process constantly repeats itself.—Aldous Huxley, "Along the Road"

In 1929 Wall Street believed in the "New Era." Thirty years later security markets are again an enigma. Has the new era really arrived? Is it ironical that no one will believe it? Maybe our thinking is scarred by none too pleasant memories.

Let the writer hasten to add that he does not necessarily believe that the new era has arrived or, for that matter, that the golden 60's will be "golden"; only that the new era experience serves to underscore a problem which constantly faces every investor, professional or otherwise: flexibility in technique and judgment.

Most of us are mentally imprisoned by the times in which we live. Those who were close to security markets during the 1929 debacle were conditioned by it—at least partially; and we suspect that it serves even today as a standard (albeit an unconscious one). Long periods of "high" prices must always seem "out of line," and investment selection and policy may be formed on the basis of a dated or inappropriate standard. Were the so-called fundamentalists floored by the 1958-'59 bull market? We would guess so,

Security analysis is an art-science — a science in the sense that data collection and methodology are important—an art in that it is almost completely interpretive, and highly individualistic. Its interpretive nature gives it the stamp of the times. The men who are Financial Analysts bear the marks of the age in which they live. The happenings of their times influence their thinking on standards and methods. . . . "The stock of an average well-known, well-managed industrial company should sell at about 10 times earnings." A standard? Yes. Usable today? We doubt it. Could it be

(Continued on Page 56)

# The Beloit Seminar: Ivy Revisited

(This editorial was written by Howard Tharsing of Dean Witter & Co., San Francisco, chairman of the Board of Regents of the 1960 Financial Analysts Seminar—Editor).

Dealing with the probabilities of the future is the primary occupation and avocation of the professional Financial Security Analyst. He seldom has the opportunity to indulge in the nearly universal desire of mankind to relive the past, except as his memories, pleasant or unpleasant, condition his approach to an industry, or to the general level of the equity market. It is true that the Senior Analyst inevitably has more memories; and it is equally certain that he has greater demands on his time. These include, but are not limited to, those resulting from the recurring tintinnabulation of the telephone. This seriously restricts his opportunities to indulge in the desire which, the noted authority on nostalgia, Shelley Berman, equates with the widespread practice of "sleeping in a foetal position".

Fortunately, for 100 Senior Analysts, the National Federation's annual

(Continued on Page 21)

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1959-1960

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# AMERICAN-MARIETTA Annual Report

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American-Marietta Company

In 1959, American-Marietta invested \$22 million in new plants and equipment. Totaling \$73 million since 1954, such expansion of A-M facilities has contributed to larger earnings and made possible increased dividend income for Common Shareowners. During these five years, earnings per Common Share, adjusted for stock splits, more than doubled.

# **ACCOMPLISHMENTS IN 1959**

Achieved record sales of \$323,647,751 ... \$72 million more than in 1958.

Increased net income to \$24,027,872... largest in the Company's history and 36.7% above the previous fiscal year.

Boosted cash flow 39% to \$35,980,543, equal to \$3.08 per Common Share.

Earned \$2.03 per Common Share compared to \$1.62 in 1958.

Split Common Shares, giving Shareowners one additional share for each four held.

Raised Common Share dividend income by 25% as a result of the 5 for 4 stock split.

Reached a new high in net worth, exceeding \$193 million.

Became an important supplier of aggregates used in construction.

Expanded cement production capacity to 15 million barrels annually.

Broadened markets for concrete products by expanding into new areas.

Entered new concrete product fields through the manufacture of packaged concrete buildings, concrete storage silos and concrete wall panels.

Opened new million dollar synthetic resin research center in Seattle.

Built new facilities at Rochester, Pennsylvania, for production of epoxy resins.

Achieved further diversification by acquiring a leading manufacturer of electrical products used in construction.

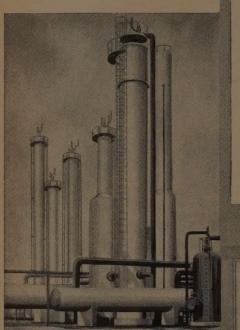
Introduced a new superalloy and a revolutionary new epoxy molding compound.

Per share figures are exclusive of Class B Common, and for 1958 reflect 5 for 4 stock split in July, 1959.

PAINTS • PRINTING INKS • DYES • RESINS • ADHESIVES CHEMICALS • SEALANTS • METALLURGICAL PRODUCTS ENVIRONMENTAL TEST EQUIPMENT • HOUSEHOLD PRODUCTS CONSTRUCTION MATERIALS • LIME • REFRACTORIES • CEMENT



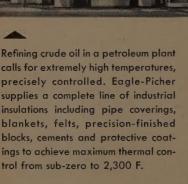
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# **EAGLE-PICHER**

# Manufacturer's Manufacturer

Strength through planned







trol from sub-zero to 2,300 F.

Frits, the basic material of porcelain enamel, are among Eagle-Picher products. Because of resistance to abrasion, chemicals, moisture, dust, heat, cold, weather and wear, porcelain enamel continues to widen its already broad scope of application. You will find it not only on customary appliances and utensils but also protecting a long list of less obvious products such as brake drums, escalator risers and jet engine liners.

"Phenopreg" plastic impregnated materials and parts span the field from bow and arrow shafts to the nose cones of guided missiles. Applications of these Eagle-Picher plastic impregnates include such varied items as fishing rods, printed circuit panels for radio and television sets, small boat hulls, grinding wheel reinforcements and aircraft wiring, ducts and housings.

Eagle-Picher is by growth, structure and intent a "manufacturer's manufacturer." It is versatile, competent and flexible. The Company's importance to the economy depends upon the uses to which other manufacturers put its products.

"Strength through planned diversification" is no mere catch phrase. It is a carefully considered philosophy.

And it is an essential part of Eagle-Picher's continuing efforts to bring greater benefits to a broader cross-section of leading manufacturers.

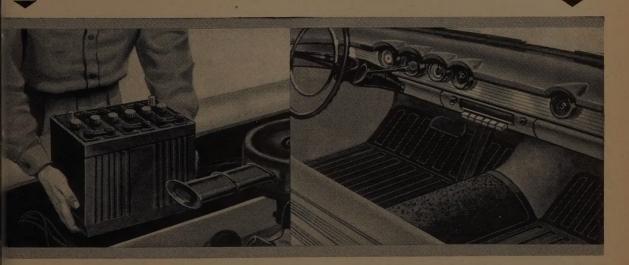
# iversification!

Zinc galvanizing forms an effective barrier to rust and finds extensive use on farm and highway, in the factory and around the home. Eagle-Picher is engaged in mining and smelting and is a prime source of zinc for manufacturers producing galvanized products.

Increased use of electrical equipment calls for automotive batteries with greater capacity and longer, more dependable life. Sharing in the research that produces such batteries is Eagle-Picher, a major producer of better lead oxides for storage batteries.



Rubber floor mats are among the many products supplied to the automotive industry. Other typical molded and extruded rubber parts include engine mounts, weather strips, tubing and accelerator and brake pedal pads. Eagle-Picher also has the world's first fully-automated rubber molding operation. In this versatile operation, up to 200,000 miniature parts a day per machine are turned out. These parts, with plus or minus tolerances of 0.002 of an inch, include such items as detonator plugs, washers, tack bumpers and shock absorber seals.





# Good Telephone Service and Good Telephone Earnings Go Hand in Hand

There is no way to have one without the other

The function of the Bell System is to serve you and serve you well.

It works two ways.

We must serve well to prosper. And just as surely we must prosper to serve you well.

Progress does not just happen. It has to be encouraged and made worth while. And it costs money; in the telephone business a whole lot of money.

Sheer prudence would bring a hesitancy to go full steam ahead if there are too many restrictions on profits. Or if the rewards of efficiency, good research, good management and downright hard work are sliced away as soon as earned.

In the telephone business there is special need for a sustained level of adequate profits. For the telephone business, more than almost any other, is a long-term business. Al-



NEW AND BETTER SERVICES for telephone users will come from the Bell Telephone Laboratories invention of the Transistor, a major scientific breakthrough. This mighty mite of electronics, which can amplify electric signals up to 100,000 times, will play a big part in push-button telephony, for example. The Transistor has been made possible by basic physical research that can only be undertaken by a progressive business with good earnings over the long pull.

ways we must keep building ahead to meet the needs of tomorrow.

These needs are growing every day. Just the gain in population alone gives some idea of their size.

By 1970-just ten years away there will be 40,000,000 more people in the United States. More and more communication services will be required by people, industry and defense.

So when we emphasize the need for satisfactory earnings on a continuing basis, it is for a very practical and useful purpose. It helps us, of course. But in a very real sense it helps you.

Only with adequate profits can we run the business most efficiently and take advantage of long-range economies.

Only with adequate profits can we finance and put in operation the latest advances in telephone science.

All this not only improves the service but helps to hold down the cost of providing it.

The result over the long run is bound to be better service for you at a lower price than you would otherwise have to pay.

BELL TELEPHONE SYSTEM





Typical Japanese store on the road to Atami. Note Western-style dress which mingles with the Oriental habit.

# Japan—A Reach for Self Sufficiency

by Carl L. A. Beckers

A MAIDEN VOYAGE is always an adventure because it promises to clarify the clouded perspective and half-formed impressions of the unknown. My "maiden voyage" to the Orient was certainly an adventure as well as a delight. With amazement I viewed the "Land of the Rising Sun" in 1958. Here I found a country, rebuilt and restored, modern and progressive, and desperately struggling toward a goal of economic self-sufficiency.

I was given this opportunity last year when St. Louis Union Trust Company sponsored my mission to the Orient in order that I might observe the Japanese and South Asian economy. My company also asked me to

Carl L. A. Beckers, vice president in charge of investment research department, St. Louis Union Trust Company, is a graduate of Washington University and holds a B.S. degree in business administration. He is also a director of Johnson-Stephens & Shinkle Shoe Co.; the Missouri-Lincoln Trust Co.; and The National Federation of Financial Analysts Societies. For the past 14 years he has lectured at Wisconsin University's School of Banking. Mr. Beckers is a member of The St. Louis Society of Financial Analysts.

learn more of the operation of United States business in Japan, and then evaluate the effect upon the present and future economy of our country. While we have not and do not intend using foreign corporation securities as Trust investments, we feel, as trustee, we must be aware of all facts which affect industries in which we invest our Trust Funds.

Until my trip I had carried about my grade school "geography book" impressions of this romantic coun-

By April, 1961, it is expected that between 60% and 70% of Japanese imports will be free of trade restrictions. This is based upon observations by a spokesman for the Ministry of International Trade and Industry. Chief beneficiary probably will be the United States. Raw cotton and wool may lead on the automatic approval list in April, 1961. Restrictions on other commodities and industrial raw materials may come even sooner.

MARCH-APRIL 1960

try. Added to that, I visualized war-blasted ruins, and

perhaps a suppressed people.

And so I viewed with some awe Japan's great cities of Tokyo and Osaka, where the East seems to meet the West. Great modern office, apartment, and state buildings, restaurants and motion picture houses (some featuring the latest American movies), traffic snarls, with a prevalence of Chrysler and General Motors' products duly entangled—make one easily forget that this is a foreign land, alien people, strange culture. Forget, that is, until one comes upon an ornate Shinto temple, a kimono-clad lady, or Geisha house!

### East and West Do Meet

In the picturesque villages of the Japanese countryside Western ways are present, but less obvious as the Eastern styles predominate. Houses are built right on the street. They often contain the typical store or trade booth at the front, and living quarters in the rear, where the storekeeper, his wife and children live. The people are seen mostly in Oriental dress—some on bicycles, some on foot, some behind ancient pushcarts. Here is a woman carrying a child, papoose-style, on her back, there an old and wrinkled man, nodding in a doorway. But suddenly a motorcycle roars through the peaceful scene, or a young woman steps across the road in "Western style" blouse and skirt, hose and high heels. A Cadillac makes a boulevard stop at the village crossroads, because a prominent electric stoplight is flashing green to red in that unlikely place!

Of all my observations of our Japanese neighbors in the Far East, the vivid impressions I brought back involve the enormous changes which have occurred primarily because of American occupation, and Westerninfused culture. Few of us, I'm sure, can realize the extent of the social, political and economic revolution which has taken place in war-torn Japan since 1946, a revolution inspired by General Douglas MacArthur. During his occupancy, changes—totally contrary to the culture and tradition of the country—resulted in not only a new form of government, but a vast upheaval in industrial management, orderly land reassignment, and a great modernization in culture. (Even visiting ladies are seen in Geisha houses!)

Labor unions for workers, health benefits, social security, and retirement (at age 55!) are commonly accepted practices now. So is the adoption of Western dress, and Western living styles, such as television and bars (although the standard of living is still much below the American), and Western mannerisms. Many Japanese speak English or understand it! How many of us speak any foreign tongue?

Before the war the land belonged to relatively few. Today this is impossible. No one may own more than one piece of farmland (36 ft. by 36 ft.), but the important fact is each family can acquire title to its own growing area. As industrious as the Japanese are, this little plot of ground will provide the family with a year-round supply of vegetables.

Likewise, industry was removed from control by a

### TRIP AGENDA

My flight to the Far East was made by Pan American Airways. With time changes coming so often I found it difficult to accept champagne when I thought bacon and eggs were due. But I took it! Boarding a clipper at San Francisco, we set down first at Honolulu. It was Saturday evening when I resumed the trip—a 16-hour, one-stop flight to To-kyo, but, nonetheless, Monday morning dawned before my ship set down at Haneda Airport, due to that perplexing International date line which passed "under us" en route. On the return trip I gained back that day I lost, and I found an unscheduled emergency landing at historic Midway Island an interesting experience. Ask me about the Loony Birds!

-C. L. A. B.

chosen group and made available to the masses. Today, Japanese industry is in the hands of aggressive businessmen rather than descendants of early select families

Because of wider ownership of farms and industry, more food, shelter, and clothing are provided for the people, and the individual citizen is even able to save money on a scale which was hopeless before World War II. Through purchase of stocks and trust shares these savings are providing part of the capital necessary for industrial expansion, and all of the improvements are performing an even more important duty—that of discouraging Communism, which, of course, breeds on poverty.

Although the Communist Party is weak in Japan, some influence is evident, particularly in the teachers' union and among students. The November 1959 demonstration against American military alliances is evidence. Japanese industrial leaders, however, are quick to express the belief that their nation is firmly anti-Communist, and in no near danger of being drawn into a Communist bloc, if it can meet its balance of payment problems and earn its living in the free world. Herein lies the key to defeating the Communistic threat; and here is where American assistance and grants-in-aid have made their show of power.

Today, nevertheless, the Japanese ask no relief as such—just the opportunity of developing markets to replace those closed by Communism, and a chance to sell their goods in the world markets.

### Basic Economic Problem: Trade

Japan's basic problem is that of trade. There are 92 million Japanese cramped in an area about the size of California. There are only 14 million persons in California. Furthermore, much of Japan is mountainous, with only about 15% arable land. Although much progress has been made, there is still a deficiency of food, raw materials and fuel. Hence, to pay for needed supplies, Japan must sell her only product, labor. This can be done only by putting her efficient low-priced labor into goods, and later offering them to those markets where she must buy her necessities.

The Japanese standard of living would be unaccept-

able to most Americans, who are accustomed to so much more; but "not to have is not to know," and everywhere I visited I observed a contented, happy people, adequately clothed, adequately fed, and adequately housed according to their wants.

"Mr. Nippon" resides with his family in a cramped, scarcely heated house—sometimes containing only one room, and a communal bath which he shares with many of his neighbors. Home furnishings are at a minimum. and the basic staple of diet is still rice and fish-for breakfast, lunch, and dinner. However, these living conditions are not a hardship to the Japanese, as they have lived so for generations, and know no other way. The wage earner either walks to work, rides a motorcycle or bicycle, or uses public transportation. It is almost unheard of for the average worker to own a carthus he lives close to his factory or place of business. I noticed large industrial plants are near residential areas just for this reason. The exception is in the cities, such as Tokyo and Osaka, where buses are as jammed as our own!

## The Reason for Low Costs

The wage of a Japanese worker depends upon his or her age, years of continuous employment, and number of dependents. But basically it is far below our rates. For instance, a girl employed in a factory, at age 18, would make about 300 yen a day (just under \$1). Each year thereafter that she remains in the employ of the same company she would receive an increase in her base pay. The pay of a male employee is higher, but still meager by comparison with our \$400 average monthly wage. A recent study showed the average of all pay of all categories of workers to be just under 25,000 yen per month (\$70). The average worker earning this salary would be 33 years of age, have almost 10 years of service, and support approximately two dependents.

It is a practice, jealously guarded by workers, to receive a bonus twice a year. This bonus usually represents something in the order of two months' pay at mid-year, and year-end. Moreover, the amount of the bonus is not within the employers' province, but is subject to bargaining, and even results in strikes.

There is another contrast between Japanese and American labor unions and conditions of employment. In Nov. 1958, Japan was in a recession, so the employment picture was not rosy. However, reduction of personnel as we know it here is not possible in Japan, as a Japanese employer cannot cut his working staff at will. Custom and formality decree that workers will be retained. Thus, a reduction in work forces isn't in order just because production is lower. Only through closing of a plant is it really possible to discharge employees, and even then the unions are in a very strong bargaining position, insisting that employees be provided for in some other manner. Unions pay considerable attention to retirement plans and fringe benefits. Companies combatting this union maneuver make it a point to hire pretty girls—because pretty girls will get married! Thus, employers may avoid automatic increases and the expensive retirement pensions.

The directors of Japanese companies offer something of a contrast with those of both American and English companies. Japanese companies generally follow the practice of having outside directors as well as company officials. The outside directors, however, take quite an active role in management and are not in any sense of the word "passive" directors. They are well compensated for their services, not in terms of fees or salaries, which would be taxable, but with with non-taxable compensation, such as having the use of a motor car with chauffeur, large expense accounts for entertaining (yes, you guessed it, this includes the expensive Geisha parties), and company-furnished houses and servants.

Women work at what we consider men's jobs. For example, at one power plant I saw women pushing carts of concrete. That particular day was a Sunday, but in Japan people work on Sunday just as any other day.

Japanese are "education conscious" and their schools are quite progressive. In Kyoto I saw school children having an art lesson outdoors near a beautiful temple which they were sketching. When I stopped and mingled with them, the children gathered around and tried to talk to me. They learn English in grammar school.

Elementary and secondary schools seem to be aware of the method of educating by actual experience. Not only are art classes conducted outdoors, but school children are often loaded on buses for geographical and historical excursions all over the country.

A college education is coveted because there is much difference in class and social standing between high school and college graduates—and, of course, a difference in job opportunity. Japan's higher educational institutions are not too prevalent, and there is a wide variance in prestige among those colleges which do exist. Some Japanese students are sent to the United States, particularly in pursuit of engineering degrees.

As I toured Honshu Island by automobile, train, and plane, I was especially interested in the great number of other "tourists" also seeing the points of interest on my agenda. These tourists were native as well as foreign, and seemed to enjoy learning about their country

### THE GEISHA HOUSE

Americans have a way of viewing the Geisha House with mixed emotions—emotions such as amusement, alarm, curiosity, envy, disapproval, or impish anticipation. Fortunately (or unfortunately!) the American view is one of misunderstanding, in spite of the clear explanation given us in the recent "Teahouse of the August Moon." For a Geisha House is simply a Teahouse, a form of Japanese restaurant, which often doubles as a Business Club. And a Geisha girl is simply a solicitous, beautifully dressed dinner companion and entertainer, one who has been trained in the ancient Oriental custom which decrees that woman is subject to man and exists only to serve him. It is difficult for Americans to comprehend this unusual Japanese attitude without confusing it with immorality.

-C. L. A. B.

January 4, 1960

Flash Annual Report to Shareowners



CHESAPEAKE AND OHIO RAILWAY

# On its way . . . the first business day of '60

Again Chessie starts the New Year by sending to its 90,000 shareowners on the first working day of 1960 the results of the previous year's operations, shown in the highlights below.

Chesapeake and Ohio, on the threshold of its 175th anniversary, ended the year stronger, financially and physically, than at any time in its long history. Working capital rose above \$60 million, highest level ever.

Freight revenues produced an excellent first half-year and held up well despite the steel strike. Revenues from merchandise freight increased \$10 million and nonexport coal traffic showed a similar \$10 million increase. C&O progress also was marked by eighty new industrial plants locating along its 5,100-mile system.

With the favorable general business predictions for '60, a year of uninterrupted industrial activity would mean C&O revenues and earnings greater than 1959.



HIGHLIGHTS

For a copy of Chessie's 1959 Flash Annual Report, write

Chesapeake and Ohio Railway
3800 Terminal Tower, Cleveland 1, Ohio

	1959	1958
Dividend Paid per Common Share	\$4.00	\$4.00
Earned per Common Share	5.60	6.36
Operating Revenues	(mill	ions)
Coal and Coke ,	\$162	\$177
Merchandise	161	151
Other,	25	28
Total Operating Revenues	348	356
Expenses, Taxes, etc. — Net	302	304
NET INCOME	\$46	\$52
Working Capital at Year End	\$61	\$55

as much as I did. Families make bus trips together and enjoy outings which are often their choice of recreation. In reality this is part of the Japanese desire to learn, for the buses are equipped with cute "hostesses" who carry on a running explanation of the countryside as the bus meanders over crowded roads.

One of the important contrasts between Japan and the United States lies in travel facilities. The Japanese Government owns the railroads, and public transportation is excellent. Trains operate on schedule, to the minute! There is a great deal of road building going on, but the Japanese still haven't improved the quality of their roads as well as they might. The concrete is thin, roadways are narrow, and construction poor. Consequently, these new roads will not hold up long. Tourists who venture upon them, however, are treated to the endless beauty of Japan's garden landscape. Rugged mountains slope to the sea, and straight rows of green rice wave in the breeze. There are thick forests of bamboo, and thatch-roofed farmhouses beside the rice paddies. I travelled over a "Turnpike" for its length of several miles. The fare was 50 yen, one-sixth of a day's pay!

Since relatively few Japanese own motor cars, the road problem is not yet too serious from the standpoint of the native population. But auto-ownership is growing rapidly, and the Japanese have a tremendous desire to move about and travel from place to place. There are good hotel facilities in the major cities, but elsewhere they are of lesser quality. Motels have not made their appearance. I was told that as new investments are under government control, the Hilton Hotel interests, and Pan American failed in their efforts to make satisfactory arrangements for their plans.

My trip agenda took me first to Tokyo and Yokohama, where I contacted American businessmen connected with Japanese-American industries in the area. Preparation and proper introduction are necessary to a successful reception. But once this has been accomplished, the doors open wide and often. I could not have been more cordially received or pleasantly entertained than I was by the American and English representatives of the several firms I visited. Such wellknown manufacturers as National Cash Register, Minneapolis Honeywell, Monsanto Chemical and American Cyanamid had cause to be proud of their new or modernized facilities located on the island of Honshu. These are operated by a joint team of foreign (American or English) and Japanese management, with Japanese labor and Japanese machinery created with help of technical assistance of the foreign management. I had an opportunity to visit modern plants and offices of National Cash Register, Minneapolis Honeywell, American Cyanamid, and Monsanto.

Members of the firm of Nomura Securities arranged a visit to the Tokyo Stock Exchange, which is an education in itself. Here are traded 100 million shares daily and the transactions are made available without tape. The "Japanese Dow Jones" was 600 at the time. In the short space of a year it has advanced to 940 as

the feverish pace goes on through direct and investment trust purchases. The average price per share was 118 yen (29c), hardly a comparison with our prices, but a respectable figure in comparison with a daily pay check of 700 to 800 yen.

Helpful friends at National Cash Register in Tokyo made full arrangements for my trip south from Tokyo. It was during this tour that I had the good fortune to see such major Japanese-owned industry as Nippon Glass, Toyo Plywood, and Noritake China. Our friends at Owens Illinois Glass Co. have the highest respect for Nippon Glass, which has taken away the Coca-Cola bottle business in the Far East. U. S. Plywood has come to recognize the competitive position of Toyo Plywood, and many a china producer here has reason to be aware of Noritake China on the shelves of department stores throughout the United States.

Main stops on the island tour were Yokohama and Oiso, Atami-and Nagoya, Kyoto (which we did not bomb) and Hakone National Park, site of the famous Fugia Hotel (where the hotel president bows and says, "Thank you for the visit"), and Mt. Fuji. Everywhere I went I found the people, and the Japanese businessmen who entertained me, overwhelmingly friendly and anxious to assist.

At the outset I discovered that postwar Japan has made great strides toward stabilizing its economy and rebuilding its productive machinery. Reconstruction, boosted by much American aid, has removed most of the visible scars of war. I was not surprised to learn the Japanese have used our grants-in-aid funds wisely, applying much of them to rebuilding industry. New, modern plants and machinery appear everywhere, and not only take care of the people's own domestic needs, but make it possible to export.

The extent of participation of the United States in Japanese industry struck me most forcibly. The established pattern of participation is that of joint enterprise with Japan. In other words, our corporations are going there and becoming business partners with the Japanese. This is accomplished by combining our investment with a particular group or family, such as the Mitsuibishi group, or the Fujiyama family. Much American investment represents technical know-how or engineering skill, furnished in exchange for a portion of the stock of a joint Japanese-American company. At one time it was possible to obtain a partnership, with the U. S. company holding the majority interest. However, the stock available has been gradually reduced to the extent that only about a 30% representation would be allowed at the time of my visit, unless the product to be manufactured was one which Japan badly needed. The entry of American manufacturers into certain lines of business is completely excluded-notably automobiles.

When an American corporation forms a joint enterprise with the Japanese, all arrangements are made with the permission of the Japanese Government so that our corporations may withdraw funds under regulations established at the time of investment. In general, capi-



Photo courtesy "The Oriental Economist"

The only passenger car specialty factory in the Orient, Toyota Motor Co., Ltd., is Japan's biggest automotive producer. Here, Toyopet Crowns (which sell for about \$2,000 in U. S.) are coming off an assembly line at Koromo. Nissan Auto Co. is Japan's second largest producer; its midget Datsun sedans retail in U. S. around \$1,800.

tal must remain in Japan for at least two years, following which a maximum of 20% may be withdrawn annually. Dividends can be brought out sometimes without penalty, and sometimes with the payment of a withholding tax.

In the operation of such business partnerships, both the Japanese and Americans are anxious to have, not only the final product, but its components, fabricated in Japan. The Japanese want this because it provides more jobs for their people, and the American corporations because it reduces costs. I visited an American machinery company, and found that all but one of the parts, for the machine produced, are manufactured in Japan. The one remaining part was scheduled for production in Japan soon! This company, and other American corporations manufacturing in Japan, are producing for the world market, which benefits Japanese balance of trade the same as if the plants were wholly Japanese owned.

One of the important developments, which seemed to be approved generally in Japan, was the American occupation program of breaking up the big family industrial trusts, or cartels, and the large landed estates, thus permitting the average Japanese citizen to buy land and a share in industry. Even those who suffered from this expropriation generally viewed the change as desirable for their country. Now it appears that there is threat of a Zaibatsu (trust) revival. An interesting article in the July, 1959, issue of *The Oriental Economist* points to the enormous strides now being made in this direction.

## The American in Japan

The system of American participation naturally involves the need for many American engineers and industry experts, settling in the Far East on a more-or-less permanent basis. This means uprooting American families and setting them down to "sink or swim" in a land of far-different culture. As an incentive to induce their "bright young men" to accept transfer to the Far East, corporations offer a substantial salary increase, or bonus, or both. This is not always gravy, as the cost of living for Americans is considerably higher in Japan, and they are apt to meet with a number of problems.

An American must try to obtain a "Western-type" house for his family, and these are at a premium. Learning where to buy, and how to feed her family, is a real challenge to his wife, who discovers that the "sanitary" conditions under which rice, vegetables and meats are raised and marketed are not the most appealing to we fastidious Westerners. Utilities and adequate heat are abnormally high. Sometimes a family will pay \$200 a month for heat alone, but servants are quite cheap, and special American schools, at reasonable rates, are available for the children.

One observation which stands out in my mind, as I look back, is the results I witnessed of the postwar inflation. It is frightening to behold the effects of a currency devaluation which took the yen from 50c to less than a quarter of a cent, and to interpret that

change in terms of life insurance dissipation, evaporation of savings, and the resulting disastrous effects in world trade.

Fortunately the postwar inflation in Japan has now subsided, and the Japanese seem determined not to permit another ruinous inflation to get under way. Important forces in Japan are working against inflation and toward a sound currency.

The leader in this is the government itself. Ever since production got under way from postwar plants, the Japanse Government has directed production toward those items which would be exported. At the same time, the administration limited, or prohibited, the supply of consumers items for which the people could spend their savings. Even homes came under the classification of "unwanted," so housing today is woefully inadequate. Products which can be produced by Japanese, in Japan, from Japanese supplies, are in adequate supply. All other articles are restricted in some fashion. Nevertheless, I do not underestimate the potent force, which is the habit of saving and thriftiness of the Japanese people.

### Toward Self-Sufficiency

If Japan has a primary goal, that goal has been, and still is, the attainment of self-sufficiency. It is imperative that the country manufacture products which can be sold in foreign markets—enough export products to balance the foreign exchange account, and pay for the needed food and raw materials which it must import. Japan must manufacture things she can sell in surplus—light industry products and specialties—the type of goods which call for a high concentration of labor. The Japanese have also realized that low price alone should not be stressed as a selling point for their products. They have found that quality, performance, and design are also important.

At the time I visited Japan our imports of Japanese goods were around \$600,000,000 per year, or about half the value of our exports to Japan. Officials of our embassy, as well as bankers and businessmen with whom I talked, believe that it would benefit our country economically, and contribute to our national security, to increase our imports of Japanese goods to an amount that would balance our exports. Within the year that has elapsed since my trip, this goal has been achieved.

During the past 10 years Japan's Gross National Product has risen from around \$12 billion to approximately \$30 billion. Its per capita income has gone from \$113 annually to \$267.

To succeed in balancing her trade, Japan needs low-cost labor, and this she certainly has. She must also produce for her own people, as much as is humanly possible, in order to provide for their needs without outside assistance.

The economic recovery in Japan has been surprising. It is based upon sound economic principles, upon the industry and thrift of the people, and upon the aid which we gave Japan in rebuilding her war-shattered industries and cities.

Farmers are now providing 80% of the food requirements at home. Farming is so intense that it brings higher yields per acre than anywhere else in Asia. Two of every five people in the labor force are engaged in farming, and rice or vegetables are grown on nearly every piece of flat land. Tea makes its appearance on the hills, as do small vegetable plots. It is necessary to use the land all year around because there isn't enough ground to support the people as it is, and they must get three, four, or five annual crops out of the same acreage.

The fishing industry produces a tremendous tonnage of food, with enough extra for a sizable export, and these two industries—fishing and farming—together have permitted the Japanese nation to pull itself up by its own bootstraps.

The extreme sensitivity of the Japanese to the dangers of radioactive fallout may be explained very largely by their dependence upon rice and fish for the major part of their diet. Professor Tasushi Nishwaki, a biophysicist conducting radiation studies, in an address in St. Louis recently, pointed out that Japan's geographical position makes it particularly susceptible to radioactive fallout, both from Russian and United States nuclear tests. He expressed the view that the problem of contamination of fish may be handled by avoiding "hot spots" in fishing areas. He regarded the protection of rice against nuclear fallout as a more serious problem. Professor Nishwaki was one of the first to board the Japanese fishing boat Lucky Dragon, and was the first to discover radioactive contamination of tuna fish being sold in Japan after the 1954 hydrogen bomb test at Bikini.

Business and industry are now holding their own. The shipbuilding, steel, and pharmaceutical industries



Four or five annual crops on the same acreage are not unusual in Japan.

MARCH-APRIL 1960

have done especially well. Japan is now the world's leading shipbuilder and the sixth biggest steel maker. Department store sales are also on their way up. In banking, money rates are much above those in our country, because loans command a 10% interest rate.

The economy of Japan is a growth economy with a large potential. As noted previously, the only thing that it can export is the labor of its people. It must manufacture goods and sell them abroad in a competitive world in order to provide the funds necessary to pay for the food and raw materials which it must import. With its growing population, its industry and thrift the Japanese are in an excellent position to expand their industry and their markets. They have shown a great ability to compete in world markets. They have a new and modern industrial plant coupled with industrial skills and managerial proficiency.

The opportunities for investment in Japan are two-fold: those which include technical aid, mainly by corporation investments; the other a simple straight stock purchase by an individual. It has become possible for foreigners to make Japanese investments with United States dollars, and the Japanese Government has undertaken to guarantee the eventual repatriation of such investments in the currency originally invested. However, there is a limitation on the period of repatriation. Investment funds placed in Japan have to be held intact for the first two years, but beginning with the third year can be repatriated annually up to 20% of existing market value. Switching to other stocks can be done freely at any time.

From the investment standpoint, one of the most remarkable developments in Japan is the rapid growth in investment trusts. Nearly every Japanese workman, living on earnings which compared with our standards are far below a living wage, nonetheless saves and invests. The public generally owns shares of stock and is the purchaser of shares in investment trusts. Savings and investment are, of course, the orthodox capitalistic methods by which countries accumulate the resources for capital expansion and growth. In capitalistic countries, this way is considered far healthier than trying to finance growth through fundamentally inflationary credit expansion.

From the standpoint of developing the tourist trade, the inadequate roads, city streets and hotel facilities, outside of the large cities, are a great handicap. However, a great increase in the tourist trade is one of the most promising roads open to Japan to improve its balance of payments. From this standpoint, tourist expenditures will do as much for Japan as Japanese exports. Japan is taking steps to improve its roads and streets. But larger expenditures for this purpose, as well as a speeding up of the program, and adoption of a more liberal attitude toward foreign hotels and airlines seeking to establish attractive tourist facilities, would serve to attract tourists to the interior of Japan as well as to the coastal cities. Such improvements would promote the flow of tourist dollars that could prove so important from the balance of payment standpoint.

The government determines every six months what imports will be allowed during the next six months, the quota being set by particular products. More liberal trade policies should stimulate a greater development of two-way trade, and benefit both Japan and other countries.

In conclusion, I found the Japanese people friendly and receptive, wanting and needing American help in developing markets, but not looking for handouts. Businessmen are grateful for the American aid which has enabled them to rebuild their war-shattered cities and industries and improve their standard of living. I believe we can be proud of what Americans and American grants-in-aid have done for this ancient Oriental country.

The political, economic, and social changes which General MacArthur instituted have transformed the face of Japan. The people may never become truly "westernized," for it is not in their nature to do so, and we wouldn't want to change their culture. However, they have accepted and gradually approved those changes we have initiated, and appear to be continually striving for further improvement. For this, they depend, primarily upon their own thrift, industry, trading ability and know-how, asking for no further aid, but only for an opportunity to expand their trade. To obtain maximum results they would be wise to liberalize their own restrictions on foreign investments, and foreign imports, and to encourage the tourist trade.

The St. Louis Cardinals:
Ambassadors of Good Will

It is in our interest and in the interest of the Japanese people that everything possible be done to improve the good relations between our countries. The Japanese are a proud and sensitive people, and we should remember these facts in all of our relations and contacts with them. From this standpoint, the St. Louis Cardinals, on their 1958 visit to Japan, did a magnificent job in creating good will. They took the Japanese ball players seriously, did not patronize them, played hard to win, and conducted themselves in such a way as to win the respect of the Japanese people. All Americans who visit Japan, or do business with the Japanese, would do well to pattern their conduct after that of the Cardinals.

I am hopeful that Japan will become a bulwark of nationalism, capitalism, and anti-Communism. If she can find sufficient markets here, and in other countries, there is little question that her economy will become vigorous and stable, a vivid demonstration of the compatibility between East and West in today's world.

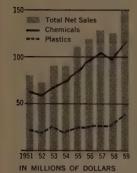
My first trip to Japan barely scratched the surface. I plan to return and hope that I may obtain a deeper understanding of this remarkable country and its industrious, capable and ambitious people.

I'm going back this year.

<sup>(</sup>Editor's note: An account of Author Beckers' second trip to Japan will appear exclusively in *The Financial Analysts Journal*.)

# HOOKER

# CHEMICAL CORPORATION AND SUBSIDIARIES



19% Sales increase over 1958

26% Earnings gain over 1958

**A Year of Record Results** 

# 1959

marked a record year for Hooker—in sales, in earnings, and in the progress made toward further sound growth for the future. Highlights of the year included the

opening of our new Hooker Research Center on Grand Island, N. Y. . . . expansion of production facilities . . . important additions to our product lines . . . and both entry into new markets and greater participation in existing ones. The formation of four divisions was completed, providing improved operating and sales efficiencies and closer control over costs. We enter the sixties with strong confidence, as evidenced by a \$100-million five-year capital investment program for further profitable expansion.

### HIGHLIGHT REVIEW

FOR THE FISCAL YEARS ENDED NOVEMBER 30, 1959 AND 1958

	1959	1958
Net sales and other income	\$150,743,809	\$126,325,225
Profit before income taxes	26,859,219	20,135,703
Provision for income taxes	13,457,583	9,496,265
Net profit	13,401,636	10,639,438
Earnings retained in business	5,865,241	3,544,799
Dividends paid	7,536,395	7,094,639
Working capital	62,052,670	34,148,990
Gross plant and equipment	163,220,609	157,080,522
Net plant and equipment	94,771,801	96,762,326
Long-term debt	62,164,900	40,500,000
Shareholders' equity	94,953,643	88,227,904
Common shares outstanding	7,336,190	7,304,576
Earnings per common share	1.80	1.43
Dividends per common share	1.00	1.00



Our 1959 Annual Report, reviewing the year's developments in detail and including a 9-year summary of our operating results and financial condition, will be sent upon request. Please write to Secretary, Hooker Chemical Corporation.

## **OUR FACILITIES AT A GLANCE**

Eastern Chemical Division	** Plants: Niagara Falls, N. Y.°; Columbus, Miss.; Montague, Mich. **Sales Offices: Niagara Falls°, Buffalo, Chicago, Detroit, New York, Philadelphia, Worcester (Marble-Nye Co.)
Western Chemical Division	Plants: Tacoma, Wash.°; Spokane, Wash.; North Vancouver, B. C., Canada. Sales Offices: Tacoma°, North Vancouver, Los Angeles.
Durez Plastics Division	Plants: North Tonawanda, N. Y.°; Kenton, O. Sales Offices: North Tonawanda°, Buffalo, Chicago, Dayton, Detroit, Los Angeles, New York.
Phosphorus Division	Plants: Jeffersonville, Ind.°; Adams, Mass.; Columbia, Tenn.; Dallas, Tex. Sales Offices: Jeffersonville°, Chicago, New York, Marysville, O.
Research Center	Grand Island, N. Y.
Corporate Headquarters	Niagara Falls, N. Y.—until spring, 1960; thereafter 666 Fifth Avenue, New York.
Subsidiary and Affiliated Companies	HEF, Inc., Columbus, Miss. Solar Salt Company, Salt Lake City, Utah. Hooker Chemical International Limited, Nassau, Bahamas. Hooker Mexicana, S.A., Lecheria, Edo. de Mexico. Hooker Chemicals Limited, North Vancouver, B.C. Marble-Nye Co., Worcester, Mass.

\* Headquarters





# Non-Skid Feet for Modern Elephants

Push back the jungle and build a landing strip. Open new frontiers and build an industrial plant, houses, a town.

Goodyear tires will keep the equipment rolling. In baking daytime heat and sharp cold at night, over rocks and through mud, today's diesel-powered elephants are ruggedly shod for punishment. Goodyear research has found the materials.

Tomorrow's world is building now. That is why

Goodyear has operations in 29 countries outside the United States. From these facilities come products for the peaceful development of young nations, for continued recovery and growth of others throughout the world.

Before a grade is leveled, before a yard of fill is moved, Goodyear imagination, planning and development have been at work — building the foundations of tomorrow.

# GOOD YEAR

THE GREATEST NAME IN RUBBER









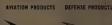














# A Method of Evaluating Growth Stocks

= by Dr. Julian G. Buckley =

In the Past few years the term "growth company" has been frequently used by Security Analysts and investors. Some of the characteristics ascribed to growth companies include: (1) rapid sales increase over an extended period of time; (2) new product development of an alert research department; (3) large capital expenditures; (4) high depreciation charges; (5) low dividend payments compared with earnings; (6) frequent stock dividends; and (7), above all, aggressive and able management.

In short, if a company has several of the above attributes, it is usually accepted as a growth company. Consequently, its stock reflects the expectation of a continued growth of earnings by selling at a high price-earnings ratio. Further, as is often the case, Analysts become so bemused by a growth company that they often fail to study the basic factor: the growth rate of net income.

It is believed that the growth rate of net income of a company should be calculated for a 10-year period. This can be compared profitably with similar companies in the same industry. In addition, it is possible by using the growth rate to project the past 10 years' earnings trend forward another 10 years and estimate the earnings of a company at that time. This would of course assume that the same rate of growth is maintained. While the projection of past records into the future earnings might seem to be an invalid method of estimating growth, it does serve as a tool for comparison of various securities. We will endeavor to show that it is useful to *compare* the estimated earnings of several companies in 1968 based on a formula, together with their prices at the end of 1959.

An example might be taken of the growth rate of earning for International Business Machines Corporation for the years 1939-1948, as shown in Table I.

Using Table I's correlation techniques, a measure can be found that shows the annual rate of earnings growth.

Applying Glover's tables for the value of M or 5.67, see *Table II*, it will be seen that r equals 1.160. This means that the annual rate of increase of earnings of International Business Machines Corporation from 1939 to 1948 was about 16%.

Table I

international business	Ma	cnines	Corpor	ation
	X	3	Z*	XY
1939	0	9	.1	0
1940	1	9	.4	9.4
1941	2	9	.8	19.6
1942	3	8	3.7	26.1
1943	4	9	.2	36.8
1944	5	' 9	.7	48.5
1945	6	10	.9	65.4
1946	7	1 18	.8	131.6
1947	8	23	.6	188.8
1948	9	28	.1	252.9
		137	3	779 1

$$M = \frac{\Sigma XY}{\Sigma Y} = \frac{779.1}{137.3} = 5.6'$$

M = 5.67

\*Net income in millions of dollars.

Table II\*

Mean Value to Fit Exponential Growth Curve

	n = R	years	
r	M	r	M
1.025	4.70	1.105	5.31
1.035	4.78	1.115	5.38
1.045	4.86	1.125	5.45
1.055	4.94	1.135	5.52
1.065	5.01	1.145	5.58
1.075	5.09	1.160	5.67
1.085	5.17	1.180	5.80
1.095	5.24	1.200	5.92

\*Tables of Applied Mathematics in Finance, Insurance Statistics. Editor James W. Glover, p. 473, 1930. George Wahr Publishing Co., Ann Arbor, Michigan. Reproduced by permission.

Since it is assumed that the *Table II* calculation was made in 1949, a time when the earnings for 10 years from 1939 through 1948 were available, it might be interesting to *forecast* the earnings for 1958. This can be done by selecting the equation to the simple exponential curve, as follows:  $y = ar^x$ .

As has been demonstrated above, r equals 1.160, or a growth rate of 16% for the 10 years 1939 to 1948; and x, in this case, will equal a 20-year period from 1939 to 1958. Also, y will equal the net income of International Business Machines Corporation in 1958, assuming r rate of growth.

To solve for a, it will be necessary to use the following formula:

Dr. Julian G. Buckley is an associate professor of finance at New York University's Graduate School of Business Administration. He is a financial consultant and corporate director. Dr. Buckley is a graduate of Harvard University, and holds a M.B.A. and Ph.D. from N. Y. U., as well as being a member of The New York Society of Security Analysts.

$$a = \frac{r - (n - M) (r - 1) \cdot \Sigma Y}{n}$$

$$r = 1.160 \text{ (rate of growth)}$$

$$n = 10 \text{ years } (1939-1948)$$

$$M = 5.67 - \text{see above}$$

$$Y = 137.3 - \text{see above}$$

$$Y = 137.3 - \text{see above}$$

$$a = \frac{1.160 - (10.00 - 5.67) (1.160 - 1) \cdot 137.3}{10}$$

$$a = \frac{1.160 - (4.33) (.160) \cdot 137.3}{10}$$

$$a = \frac{1.160 - .6928 \cdot 137.3}{10}$$

$$a = \frac{.467 \cdot 137.3}{10}$$

$$a = \frac{.467$$

Antilog of above = 124.2 (or \$124,200,000).

The actual 1958 net income of International Business Machines Corporation was \$126,191,000. Thus, the above 1949 forecast of the 1958 net earnings of International Business Machines Corporation would have been 98.4% accurate.

Using the same method as above, it is possible to forecast the earnings of International Business Machines Corportaion up to 1968. Between 1949 and 1958 the growth rate was 19.3%. Projecting this forward to 1968, using the same formula (y = arx), the answer would be \$776,000,000, or \$42.50 per share, based on the shares currently outstanding. This compares with reported earnings at that time of \$6.93 per share in 1958.

It should be stressed that this method of forecasting earnings should be used with caution. It is based on the rate of growth in the past 10 years, which might not be sustained. However, the approach is useful in comparing past growth rates to current market prices. Also, the 1968 earnings might be of interest when compared with prices at the end of 1959. For example, it is well known that Firestone Tire and Rubber Company and Goodyear Tire and Rubber Company are growth companies. The following tabulation, however, will show that Goodyear has been growing at a 11.0% rate per annum, compared with 8.5% for Firestone. Further, Goodyear at the end of 1959 was selling 6.0 times estimated 1968 earnings, compared with 7.8 times for Firestone. In selecting the purchase of the stock of Goodyear, in preference to Firestone, this factor should

Table III

Growth Rate and 1968 Earnings of Selected Companies

		Earned	Per Share		10/21 /60
	Growth Rate (1949-1958)	Actual 1958	Estimated 1968	12/31/59 Price	12/31/59 Price divided by 1968 Est. Earning
I.B.M.	19.3%	\$6.931	\$42.501	438	10.3
Chemicals					
Dow	6.3%	$2.39^{2}$	4.00	98	24.5
DuPont	6.8	7.25	18.13	264	14.6
Eastman Kodak	9.7	2.57	7.42	107	14.4
Drugs					
Merck <sup>3</sup>	8.2%	2.53	5.25	80	15.2
Pfizer	12.1	1.34	5.21	. 33	6.3
Sterling Drug	<b></b> 6.3	2.42	4.38	52	11.9
Natural Gas					
American Natural Gas	13.8%	4.441	17.241	58	3.4
Columbia Natural Gas	13.9	1.44	5.40	20	3.7
Oklahoma Natural Gas	6.9	2.16	4.93	26	5.3
Public Utility-Holding					
American Electric	9,5%	2.30	6.29	48	7.6
Southern Co.		1.81	4.83	39	8.1
Texas Utilities	14.3	2.73	12.43	75	6.0
Rubber					
Firestone Tire & Rubber	8.5%	2.041	5.881	46	7.8
B. F. Goodrich		3,95	7.63	88	11.6
Goodyear Tire & Rubber		2.021	7.671	46	6.0
Steel					
Bethlehem Steel	6.3%	2.91	7.60	54	7.1
Inland Steel		2.77	8.30	46	5.6
United States Steel		5.13	19.88	98	5.2

<sup>&</sup>lt;sup>1</sup>Adjusted for recent stock splits. <sup>2</sup> Year ended May 31, 1959. <sup>3</sup> Includes Sharp & Dohme, Inc.

be one of several considerations and certainly not the sole or determining one.

A comparison of several leading issues in selected industries is shown in *Table III*.

From Table III it might be noted that the chemical companies, which are often cited as examples of growth companies, have shown a much slower growth rate than, for example, several of the steel, rubber, drug, and public utility holding companies. Also the price-1968 earnings ratios of the chemical companies are higher than almost all of other companies shown. Of the three chemical companies listed. Eastman Kodak seems to be the most attractive. Based on the rate of earnings growth and price-estimated 1968 earnings, the natural gas companies seem to be the most undervalued. However, since these companies are regulated, and have limited energy reserves (from a long-term standpoint), they are not as attractive as their earnings growth might indicate. This, of course, is not so true of the public utility holding companies, which, at present prices, seem to have a considerable amount of growth potential.

## The Beloit Seminar

(Continued from Page 3)

Beloit Seminar (held at Beloit College, in association with the University of Chicago) combines both an opportunity to return to the "halls of ivy", thus curing any incipient fixations, and the opportunity to peer into the future "as far as the human eye can see". This most desirable state of affairs is the result of blending a splendid program, an excellent faculty, and an ideal location, with a student body consisting of 100 Senior Analysts, whose background, achievements, and capabilities permit them to contribute importantly to the discussions.

"Beloit" is a rewarding experience to attending Analysts. This is evidenced by the over-all ratings of good to excellent given the seminar by those attending in each of the last four years. Moreover, a review of the comments by individual seminarians clearly indicates that the great majority felt that the formal program was most useful in presenting a broad over-all picture of the economy; in developing methods of analyzing the key factors affecting monetary policy; developing methods for analyzing, comparing and projecting cash flow as well as earning power; and in suggesting yardsticks useful in measuring quality of earnings. In addition, it may be noted that the informal discussion periods often contributed importantly to the crystallization of current thinking on both the general market and individual security issues. These discussions also made for closer acquaintances and better understanding of mutual problems and individual points of view. All this, without constant interruptions of telephones!

The week of August 21 to August 27, 1960, will

# The Helen Slade Lectures

The services of the outstanding Financial Analysts in Wall Street have been obtained by Co-Chairmen Lancaster M. Greene and Henry Slade Sanders for a series of lectures at The New School, 66 West 12th Street. The speakers are giving their services gratuitously in memory of Helen Slade Sanders.

In inaugurating the series of lectures in February, Pierre R. Bretey, the editor of *The Financial Analysts Journal*, speaking as the representative of all Analysts, paid tribute to Helen Slade. Believing that this tribute is of general interest, his remarks, are herewith reproduced:

For the second successive year, I have the distinct honor of being the first of my many numerous and distinguished colleagues who are to appear on this podium each paying his tribute to a most lovable and most dynamic personality, the late Helen Slade Sanders. It is peculiarly fitting that I should be the spokesman for the Analysts in remembering Helen, having been closely associated with her during the rapid growth of the New York Society of Security Analysts from its humble beginnings less than a quarter of a century ago, to a present position of both influence and affluence, and during the period of development of her pride and joy, The Financial Analysts Journal, from a little known and relatively insignificant publication, to one designated by the Harvard School of Business as compulsory reading for the serious student of business and financial affairs.

Helen Slades' major interests were not solely limited to those of the analytical profession and its official publication. She fought with zeal and with righteous indignation against a shocking industry practice—still all too prevalent today-of considering men beyond the age of 45 as no longer employable in the face of their having much to contribute to industry because of their rich business experience. Before too long, we feel confident that the cause for which she raised her powerful voice, will find a practical solution. Within the short span of a decade—and the years seem to speed by at accelerating rate — few of those participating in this series of lectures will be actively engaged in their profession. It is the hope of those who have been closely associated with Helen Slade that The New School will continue to cooperate with leaders in the New York Society of Security Analysts, and with leading members of the financial community, to continue this series of lectures to perpetuate the memory of one to whom we all owe so much.

again present to 100 Senior Analysts the opportunity to combine the past with the future, and to reap the benefits outlined in the foregoing paragraphs. The forthcoming brochure, to be mailed to members of all constituent societies, will present this opportunity to you. It will be up to you to take advantage of it!



# 1959...

# CULMINATION of our FIRST DECADE in CHEMICALS

JUST 10 YEARS AGO, National Distillers began a diversification program in the field of industrial chemicals. By 1959, the company had achieved certain significant goals along the way. Today National Distillers and Chemical Corporation is:

12th in the U.S. in overall chemical sales.
 Third—and soon to be second—in the production of polyethylene, the world's fastest growing plastic.
 World leader in sales of industrial alcohol.

Net chemical sales, excluding Federal excise taxes, amounted to \$118,511,000 in 1959, an increase of \$26,510,000 over the preceding year. Chemical operating profits were \$20,601,000, or 37% of total operating profits, up \$4,550,000, or 28%, over 1958.

The U. S. Industrial Chemicals Co. Division's polyethylene production capacity of 200 million pounds a year will be increased by mid-1960 to 300 million pounds, making National the world's second largest producer. Substantial gains were registered during 1959 in polyethylene, industrial alcohol, sulphuric acid and ammonia. The division is also a large producer of liquefied petroleum gases (LPG), caustic soda, chlorine, sodium, phosphoric acid and ethyl chloride, as well as a number of smaller volume products.

The Kordite Division, producer of polyethylene film and converted film products, was greatly expanded in 1959, capacity being approximately doubled during the year. Research facilities were enlarged and great emphasis is being placed on developing new uses and markets for polyethylene film. Continued rapid growth for this new packaging material is indicated.

Liquor Division sales in 1959 reached the highest level in company history. The trend of consumer preference for premium straight bourbon whiskeys continued and Old Grand-Dad, Old Taylor and Old Crow were even more firmly established as leaders in their respective fields than ever before. Gilbey's Gin became the largest selling gin in the United States in 1959.

Sales of the Liquor Division in 1959 totaled \$426,357,000, a new record high, up \$25,177,000 from the preceding year. Operating profits of the division amounted to \$35,280,000, or 63% of total operating profits, a gain of \$5,273,000, or 18%, over 1958.

The future looks most promising and 1960 should result in increased growth for each division of National Distillers and Chemical Corporation.

# NATIONAL DISTILLERS and CHEMICAL CORPORATION

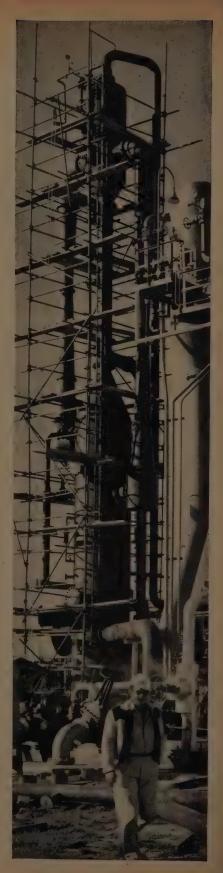
99 PARK AVENUE, NEW YORK 16, N. Y.

Copies of the Annual Report for 1959, containing a more complete description of the advances made during the year, are available on request. Write for your copy to Paul C. Jameson, Treasurer.





### **RESULTS IN BRIEF** 1959 1958 \$575,566,000 \$524,310,000 Operating profit\*—Liquor 35,280,000 30.007,000 Operating profit\*—Chemical 20,601,000 16,051,000 Federal taxes on Income 25,900,000 21,075,000 Net income 25,068,000 20,103,000 Net income per common share \$2.23 Common stock dividends paid 1.10 1.00 Working capital \$222,868,000 \$221,436,000 Net property, plant and equipment 186,431,000 175.018.000 Depreciation provided 13,463,000 11,301,000 \*Before Interest charges and Federal income taxes.



# The Investment Manager of the Future

by Edmund A. Mennis

Editor's note: This article is based on an address given by Mr. Mennis at St. John's University, Brooklyn, N. Y.

THE PROFESSION OF A FINANCIAL ANALYST is relatively new. It is true that in the 1920's and in the '30's, financial statisticians were employed by a few investment houses to provide customers and salesmen with what data were available on corporations and the stock market. Financial Analysts were not uncommon in banks and consulting firms. However, the great increase in the number of these Analysts and their employment in research departments, not only of brokerage firms but of a multitude of institutional investors as well, has had its greatest growth since World War II.

This growth stems, in part, from the vast amount of financial data now made available by the majority of corporations in the United States. Much of this disclosure has been the result of laws passed during the 1930's, requiring that more financial information be given to the public. However, it also reflects a changing attitude on the part of corporate management. Recognizing the importance of good stockholder relations with individuals and with institutions, corporate officials are much more accessible to members of the financial community.

As the available material has grown and as the demand for more sophisticated analyses has increased, the Financial Analyst has become a more important part of the financial community. Professional societies have changed from a few men having occasional lunches in a few cities to a total of 23 societies in as many cities, with a total membership of over 6,000. These organizations not only meet periodically with corporate officials but also conduct industry forums, training programs and field trips of investment interest. The National Federation of Financial Analysts Societies has its own professional publication, The Financial Analysts Journal (now in its sixteenth year of publication). Most important of all, after years of work, the directors of the society have recently approved the adoption of professional standards with the intention of accrediting members who by background, experience, character and the successful completion of a series of examinations can attain the title of Chartered Financial Analyst.

Edmund A. Mennis is director of research and an economist for the Wellington Management Company, as well as a member of the Investment Committees advising both the Wellington Fund and the Wellington Equity Fund. As a Financial Analyst, he has specialized in the steel and automotive industries for many years. Mr. Mennis is a member of the Financial Analysts of Philadelphia.

Large Financial Institutions

Commendable as this progress may seem, I believe that it only begins to meet the needs for investment managers in the next two or three decades. In order to appreciate these needs, recall briefly the changing nature of our capitalist system.

Many persons are familiar with this change, which is best summed up in two books: Berle and Means The Modern Corporation and Private Property, published in 1932, and Father Paul Harbrecht's recent book, Pension Funds and Economic Power. The underlying theme they develop is first the altered attitude of the individual toward property. With the growth of large corporations, the stockholder is, as a rule, less interested in his legal property rights and more interested in the income from his shares and their liquidity—that is, their transferability on a securities exchange. But a still further separation is developing. Other institutions are now coming between the productive property and the ultimate beneficiary. These are large financial institutions—pension and profit-sharing funds, mutual funds, insurance companies, bank-administered personal trusts —that themselves gather the evidences of ownership, manage them for their income-producing function, and distribute the benefits to the ultimate owner in turn. It is the growth of these financial organizations that has created the need for a new type of investment manager who administers hundreds of millions, even billions, in financial assets in a dynamic, complex economy that calls for skills not easily found or acquired.

The development of this new breed of investment manager presents a three-fold challenge. The first challenge is to the student who wishes to prepare for a career in this area. The most important ingredient that he requires, and without which all else is nothing, is the highest moral and ethical standards, so that he can ultimately assume the position of great trust that is ahead. Secondly, of course, is familiarity with the basic tools that any Financial Analyst uses: a background in investment analysis, corporation finance, accounting, statistics, financial administration, money and banking. To that, however, should be added a thorough grounding in economic theory, economic and financial history, national income analysis, business cycles, and the like. It also assumes some knowledge of related social sciences: government, psychology, sociology.

With these basic tools, however, you are equipped only to begin a career as an investment manager. In this area, there is no substitute for the long, hard experience of working in the field. With this hard work, a

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proper seasoning and a good deal of humility, you may then be prepared to move up the ladder to a staff capacity of supervision, field work and recommendations for investment decisions. At this stage, the talents of the Financial Analyst will have a severe test because he will be looking beyond specific companies and industries to the relationships among them. He will also be bringing to bear more of his economic and business background and its influence on investment programs. The final step up the ladder will be to the true investment manager, the decision maker. At this level, you may be required to co-ordinate into a cohesive whole the work not only of other Financial Analysts, but, of economists, statisticians and other specialists. In the final analysis, however, your most valuable asset will be sound investment judgment which will call fully on all of your background and skills as well as a deep sense of responsibility to those for whom you are merely a trustee.

### A CHALLENGE TO EDUCATION

So much for the challenge to the individual. There is also a challenge to our educational institutions. Through appropriate course work, and, more importantly, through an integration of this work, are they preparing men to move into this broad new field? Although I cannot claim wide knowledge of the course offerings of all our graduate business schools, based on a sample of such graduates who yearly come to our office for employment, few schools seem yet to understand this need, let alone attempt to meet it. A student trying to prepare for a career in this field finds few courses designed for his objectives. Rather, he is faced with taking a large number of courses in many departments in order to glean from each a portion that will be of use to him. I do not think, however, that the solution lies in more courses. I would argue, rather, that our graduate schools should offer fewer courses designed to meet occupational objectives in broad fields. I believe also that investment management should be one of these fields.

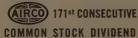
The final challenge, I believe, is to the investment community itself. There are, of course, some outstanding leaders who recognize the changing nature of our financial institutions and the future problems ahead. They are seriously concerned with training their successors to be true investment managers of vast sums of money, rather than Financial Analysts interested primarily in stock market movements. But I wonder if this challenge is as widely understood as it should be. And I wonder also if business can train its men without help. The problems in this area have grown more complex as the size of the funds invested by institutions has grown.

It is now more than merely making decisions to buy or sell this or that stock, or bond, at this or that price. Rather, it is the problem of weaving together the detailed knowledge we have about our business scene and its future prospects with the implications of such prospects for the money markets and the stock markets. On this detailed and complex analysis, investment policy and program are based. As you can see, investment management can no longer be separated from the field of economics. Here, again, our academic institutions, through their research centers and in co-operation with the business community, could render valuable service. Removed from the distractions of daily business decisions, and with the knowledge of the great strides in economic analysis that have taken place in recent years, they can supplement the work that is going forward in business itself.

In summary, there are limitless opportunities ahead for individuals with outstanding character, sound backgrounds, insatiable curiosity and a desire for hard work. There are great opportunities for our academic institutions to meet a need in the business community which has as yet been poorly recognized. Finally, we in the financial community need to recognize the changing nature of our responsibilities to our clients and shareholders as well as to society as a whole. Working together, I know that these challenges will be met.

# AIR REDUCTION

Company, Incorporated



The Board of Directors has declared a regular quarterly dividend of 62½¢ per share on the Common Stock of the Company, payable on March 5, 1960, to holders of record on February 18, 1960, and the thirty-third regular quarterly dividend of \$1.125 per share on the 4.50% Cumulative Preferred Stock, 1951 Series, of the Company, payable on March 5, 1960, to holders of record on February 18, 1960.

January 27, 1960

T. S. O'BRIEN, Secretary

# MINNEAPOLIS GAS

739 Marquette Avenue Minneapolis 2, Minnesota

### **Common Stock Dividend**

The Board of Directors of Minneapolis Gas Company, at a meeting held on January 14, 1960, declared a dividend of 38 % cents per share payable in cash on February 10, 1960, to common stockholders of record as of the close of business January 28,1960.

G. T. MULLIN, President



# THE DAYTON POWER AND LIGHT COMPANY

DAYTON, OHIO
150th Common Dividend

The Board of Directors has declared a regular quarterly dividend of 60c per share on the Common Stock of the Company, payable on March 1, 1960 to stockholders of record at the close of business on February 15, 1960

GEORGE SELLERS, Secretary February 5, 1960

# ARMCO WEARS MANY HATS

New steels are born at Armco

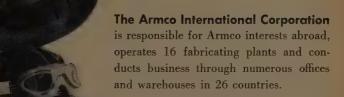
With two steel-making divisions and four major subsidiaries, the people of Armco must wear many hats.

# For example:

Armco Division produces millions of tons of steel sheets and strip a year. But the products that most distinguish Armco Division are its special steels. Some are designed for deep-drawing or porcelain enameling. Others are unique stainless steels and electrical steels or grades with special protective coatings. Each has unusual properties, but all have one thing in common. They perform better in fabrication or service than ordinary steels.

Sheffield Division supplies a wide range of steel products used by manufacturers, fabricators of structural and reinforcing bars, farmers and the oil industry. It also serves America with products such as bolts, nuts, forgings, grinding media, wire, alloys and other special-purpose steels.

The National Supply Company is the world's largest manufacturer and distributor of oil field machinery and equipment. This Armco subsidiary serves the oil industry through a network of company-owned supply stores in every major oil field in the United States, Canada and Venezuela.



Union Wire Rope Corporation makes high carbon wire, wire rope, braided wire fabric and stress-relieved wire and strand for pre-stressed concrete. The company's growing plant at Kansas City, Missouri, is equipped to make approximately 90,000 types of wire rope.

Armco Drainage & Metal Products, Inc., the world's foremost manufacturer of drainage and related construction products, has pioneered every major advance in the corrugated metal pipe industry. Armco Drainage is also among the leaders in the production of factory-engineered steel buildings, welded steel pipe, highway guard rail and other fabricated metal products.

\* \* \*

And there you have the story of how the steels and skills of 43,000 Armco men and women serve America and the free world. Armco Steel Corporation, General Offices, Middletown, Ohio.





# ARMCO STEEL



New "El Salvador" mine and concentrator of Anaconda's subsidiary, Andes Copper Mining Company

# High in the Andes, Anaconda opens another great copper mine

THE FREE WORLD'S SUPPLY OF COPPER was significantly increased when Anaconda's new mine, El Salvador, recently went into production. Located 7800 feet up on the western slope of the Andes in north central Chile, El Salvador is the largest new copper mine that has been opened since 1945. Soon to produce at a rate of 100,000 tons of copper a year, it has proved ore reserves for 40 to 50 years. And there are additional reserves which have not yet been fully developed. It promises to take its place as one of the few really great copper mines thus far discovered.

It teams up with an even greater mine, Chuquicamata, located a little farther north in Chile. Here Anaconda has produced more than 6,000,000 tons of copper since 1915. Today, after four decades of production, Chuqui's proved

ore reserves still exceed those of other great mines.

Chile is perhaps the Earth's most bountiful storehouse of copper ore. And in the future, Chilean copper production can repeatedly set new records. This is one important reason why nations and industries dependent on copper can rest assured of increasingly adequate supplies of this versatile red metal.

Expanded copper production in Chile is part of an over-all program in which Anaconda is continually applying more than 60 years of experience—not only to the development of new copper sources—but also to meeting the expanding needs of industry for more and better products in the entire nonferrous metal field. The Anaconda Company, 25 Broadway, New York 4, N. Y.

001014

# ANACONDA

SUBSIDIARIES OF ANACONDA MANUFACTURE: COPPER AND ALUMINUM ELECTRICAL WIRES AND CABLES; ALUMINUM FOIL, SHEET, ROD AND BARS, STRUCTURALS, TUBING AND EXTRUDED SHAPES; COPPER, BRASS AND BRONZE SHEET, PLATE, FUBE, PIPE, ROD, FORGINGS AND EXTRUSIONS; FLEXIBLE METAL HOSE AND TUBING.

# Growth Stocks - Opportunity or Illusion

by Dr. Robert E. Kennedy, Jr.

In the current inflation-oriented securities markets, investors have swarmed to common stocks as a presumptively superior investment media than fixed-income securities. This prevailing attitude is reflected in the state of security yield patterns, in which, contrary to traditional differentials, stock yields are substantially lower than bond yields.

In the "old days", this would constitute a severe danger signal that the stock market is vulnerable to a decisively sharp drop via massive switching, until more "normal" relationships between stock and bond yields are restored. But today, such an incipient danger signal is merely shrugged off—even by the "professionals"—in view of the wide-spread alarm of expected continuing inflation. Thus, another of the old axioms of the market, like "old generals", apparently has faded away, as Thorstein Veblen, American economist, would say, by "habitual disuse".

Intense interest is especially concentrated in "growth stock" issues, as indicated by the low state of current yields and very high multipliers associated with these securities. With current yields at something less than 2% for many of these issues, it can be concluded, rather poetically, that "hope springs eternal". Naturally, the rationale of growth-conscious, inflation-hedging investors is the expectation of exceedingly rapid growth rates of earning power, dividends, and market values, thereby "justifying" the very great premiums that must be paid for the privilege of owning these "high performance" stocks. With characteristic faith in the future, many investors expect to be far better off with "growth stocks" over surprisingly short periods of ownership, and that, in a distant period, such as five years, they will be rich.

Such attitudes, forming a kind of new "orthodoxy" about the market, gives sufficient cause to stop briefly and take account of the simple mathematics of compound interest, as this technique applies to the universe of "growth stocks". We shall take note of past compound growth rates as a basis for mechanical projection, and will see that, except in the most extraordinary cases, the outcomes can be very short of implied expectations, and that normally the period of necessary ownership must be considerably longer than five years in achieving satisfactory rewards (as alternatives to other types or classes of securities). In reaching a target average yield of, say, 5% on investment cost, the growth stock ownership period must normally exceed a decade at

current high prices, as the sequel will attempt to confirm. This is a very great "time premium" which only the most persevering investors will recognize as a probable fact of life. Accordingly, going back to the simple mathematics of compound interest is a constructive step in the right direction, in the appraisal of potential risks and rewards associated with "growth stocks".

### TABLES ILLUSTRATE TIME PERIODS

Two mathematical tables are presented to illustrate the time periods (length of holding) necessary to reach specific target yields, given selected purchase yields and compounded rates of dividend growth. Table I tells us how long a stock must be held in reaching a desired future yield; e.g., a stock purchased at a current yield of 3%, and expected to grow at 5% compounded annually, will reach a 6% target yield on investment cost by the 15th year of continuous holding. Table II tells us how long a stock must be held in reaching a desired average annual yield on investment cost; e.g., a stock purchased at a current yield of 3%, and expected to grow at 5% compounded annually, will provide an average yield of 6% on investment cost after a 35-year period of continuous ownership. This suggests a considerable "time premium" even at moderately rapid rates of growth in attaining satisfactory yield results. This is of special significance to institutional investors who usually place primary emphasis on dividend return and income requirements, and merely secondary concern for capital appreciation.

Tables I and II constitute formal relationships. Their value is to indicate future yield possibilities and optima, and help to provide a practical method of dealing with expected future growth stock yield values. Naturally, the empirical and judgment information of particular "growth stocks" are data which the investor, or Security Analyst, must develop, in order that the "appropriate" mathematical values in the tables can be selected.

For example, growth rates for specific "growth stock" issues can be derived by historical trend analysis, and thereby applied to current purchase yields. Good sense may demand that the developed past growth rates be sharply reduced in value, to allow for slower future growth, and the prospect of reaching maturity (e.g., the Gompertz growth curve). This element of conservatism in selecting growth rates arises from the observation that rapid growth rates, for very long periods, are not a

Dr. Robert E. Kennedy, Jr. is associate director of finance and economics at the University of Arkansas' College of Business Administration. He is also a general partner in the Palmer-Kennedy Organization, specialists in stockholder and financial relations. Dr. Kennedy has written other articles for this publication.

<sup>1.</sup> These tables principally owe their origin and inspiration to the excellent and comprehensive statistical formulations in Samuel E. Guild's "Stock Growth and Discount Tables" (Financial Publishing Company, Boston, Mass., 1981). The tables presented in this article may be utilized, also, for "earnings yield" projections, if desired.

Table I

Approximate Number of Years Required to Reach a Desired Future Yield,
Assuming Various Purchase Yields and Various Rates
of Expected Compound Dividend Growth

		Approximate Number of Years, Based on Annual Rates of Dividend Growth of:					
		2.5%	5.0%	7.5%	10.0%	15.0%	20.0%
5% Desired Future Yield							
at Purchase Yields of:	2%	. 38	19	13 '	10	7	51/2
	3%	23	11	7 1/2	51/2	4	3
	4%	9	5	3	2 1/2	1  1/2	11/2
6% Desired Future Yield							
at Purchase Yields of:	2%	45	23	16	12	8	6
	3%	30	15	10	8	5	4
	4.%	17	9	6	4 1/2	3	21/2
7% Desired Future Yield							
at Purchase Yields of:	2%	50	27	18	13	9	7
	3%	35	18	12	9	6	5
	4%	23	12	8 2	6	4	3
8% Desired Future Yield							
at Purchase Yields of:	2%	60+	28	19	15	10	8
	3%	40	20	13	11	7	6 1/2
	4%	30	15	10	8	5	4

Table II

Approximate Number of Years Required to Obtain an Annual Average Yield of 5 Per Cent and 6 Per Cent, Assuming Various Purchase Yields and Various Rates of Expected Compound Dividend Growth

		Approximate Number of Years, Based on Annual Rates of Dividend Growth of:						
		2.5%	5.0%	7.5%	10.0%	15.0%	20.0%	
5% Desired Annual Averaş Yield at Purchase	ge							
Yields of:	2%	60 +	44	26	18	12	8 1/2	
	3%	52	23	14	10	6.1/2	5	
	3.5%	35	15	9	61/2	4	3	
	4%	20	9	51/2	4	21/2	. 11/2	
6% Desired Annual Averag Yield at Purchase	ge					ŕ		
Yields of:	2%	60 +	53	34	23	14	11	
	3%	60 <del>+</del>	35	20 -	14	9	6 1/2	
	3.5%	54	25	15	11	61/2	5	
	4%	30	17	11	8	5	3 1/2	

Table III

Compound Amount Table  $S = (1 + i)^n$  at 5-Year Intervals at Rates of Compound Interest From 1 Per Cent to 20 Per Cent

Compounded Rates of (i)1	Sth Year	10th Year	15th Year	20th Year	25th Year	30th Year	30-Year Average Factor
1%	1.05	1.10	1.61	1.22	1.28	1.35	1.94
2	1.10	1.22	1.35	1.49	1.64	1.81	1.43
3	1.16	1.34	1.56	1.81	2.09	2.43	1.73
4	1.22	1.48	1.80	2.20	2.67	3.24	2.10
5 -	1.28	1.63	2.08	2.65	3.39	4.32	2.55
6	1.34	1.79	2.40	3.21	4.29	5.74	3.13
7	1.40	1.97	2.76	3.87	5.43	7.61	3.84
8	1.47	2.16	3.17	4.66	6.85	10.06	4.73
9	1.54	2.37	3.64	5.60	8.61	13.25	5.83
10	1.61	2.59	4.18	6.73	10.85	17.47	7.24
12	1.76	3.10	5.47	9.64	16.99	29.92	11.15
14	1.92	3.71	7.14	13.73	26.45	50.96	17.32
16	2.10	4.42	9.28	19.50	40.97	86.10	27.06
18	2.29	5.24	11.93	27.41	62.72	143.50	42.19
20	2,49	6.19	15.42	38.38	95.50	237.70	65.95

permanent feature of the industrial landscape. As an almost inexorable process, industries do reach maturity; coal mining, railroading, and textiles are familiar examples.

The chemical equity group is widely hailed as a sort of classic "growth industry". And indeed, this conclusion seems to be entirely justified, when one looks back over its long and rewarding history. A study of duPont —the unmistakable leader in the industry—reveals some interesting data: its compounded dividend growth rate is 7.5% annually for the 30-year period (1926-55), and is approximately 13% annually for a 10-year post-war period (1946-55). If we conveniently assume that duPont stock can now be purchased on a 3% yield basis (although we know the current yield is more nearly 2.5%), it is possible to project the period of time it must be held in reaching a 6% target yield, given various estimates of future compounded dividend growth. For example, it means that a new duPont stockholder must hold his investment patiently for about 10 years in order to reach a 6% desired future yield, and for 20 years in attaining a 6% average annual yield, assuming the future dividend growth rate duplicates its 30-year past record (7.5%).

We may make other arbitrary projections for duPont, based on variously selected growth rates, ranging as high as 13%, which duPont experienced in the postwar decade.

Approximate Number of Years Required to Reach Target Yields

Variously Selected Growth Rates	'6% Desired Yield	6% Average Annual Yield
13.0%	6 years	11 years
10.0%	8 *	14
7.5%	10	20
5.0%	15	35
2.5%	30	60

The American capitalistic system is correctly described as a growth economy, whose secular Gross National Product has been expanding at a compounded rate of 5% for a long time (i.e., 3% real growth, and 2% price-level growth). Naturally, most well-managed, major corporations share fully in this diffusion of prosperity and growth. If they merely keep abreast of general economic growth, and do not, like the high "growth rate" stocks, substantially exceed the general growth trend, then wisdom dictates that the vast majority of "blue chips" should be acquired by investors on a quite favorable current yield basis.

For example, if a stable-income type of equity (a major foods stock) is acquired at a purchase yield of 4%, associated with an expected compound dividend growth rate of 5% annually (keeping up with unadjusted G.N.P.), then it will require an ownership period of roughly 17 years to obtain, on investment cost, an average annual yield of 6%. Thus, even moderately growing common stocks, purchased at reasonably high purchase yields, must be held for long periods in achieving satisfactory portfolio expectations. The "high growth stocks", considering their enormous mar-

ket premiums and possible over-discounting of the longterm future, must be held for similarly long periods in attaining target yield objectives for institutional accounts.

### CAPITAL GAIN POTENTIALS

We may now expand our view of "growth stocks" to embrace capital gain potentials as well. The prospect of sharply-rising capital gains in owning the "growth stocks" arises from various expectations of (1) higher than average earning and dividend power, (2) heavy plowback of retained earnings and low payout ratios, and (3) very long-term successful performance of the "growth industry" groups. It goes without saying that the affluent capital gain possibilities is the most popularized feature of "growth stocks".

The technique we shall develop, embracing both yield and capital gain results, also illustrates formal (mechanical) relationships. The "results" suggested in any of our illustrations do not constitute a forecast; we have no crystal ball! Of course, it is certain that any purchase of a "growth stock" involves a kind of forecast, whether implicit or explicit. For this reason, it is obviously wise to develop projections with the use of historically-grounded, conservative and realistic values. Otherwise, serious errors of judgment can be committed in the name of "scientific prediction". As anyone should know, extrapolating past trends into the distant future is a hazardous business, leading to some very silly or bad investment decisions, as 1929 bears witness.

To facilitate our purpose, Table III, a compound amount table, is presented. The first column lists rates of compound interest growth (1% to 20%); the next six columns show the compound amount factors at five-year intervals, up to 30 years, appropriate to each rate of compounded growth. The last column indicates the average compound amount factor for the 30 year period, appropriate to each growth rate.

To illustrate the use of *Table III*, assume that we buy a "growth stock" on a 3% yield basis, associated with a compound interest growth rate of 10% annually. The yield results, at 5-year intervals and for the 30-year period, are summarized below, and indicate that the 3% purchase yield multiplies to almost 52% on investment cost by the end of the 30th year, producing an average annual yield of approximately 22% for the entire period of sustained ownership.

At the End of	Associated Compound Amount Factor	Conversion to Yield Results
5th year	$1.6 \times 3\%$	4.8%
10th year	2.6  imes 3%	7.8%
15th year	4.2  imes 3%	12.6%
20th year	$\cdot$ 6.7 $ imes$ 3%	20.1%
25th year	10.9  imes 3%	32.7%
30th year	17.5  imes 3%	52.5%
30-year average	7.2  imes 3%	21.6%

Let us assume that, by the end of the 30th year, the stock is widely recognized as reaching a state of maturity (i.e., being converted into a stable-income security), and, thus, is selling on a 5% purchase yield basis. The

# Mechanical Projection of Average Annual Yield and Capital Gain Results of Investment in Six Chemical Stocks for the Next Thirty Year Period

	Recent Purchase Yields*	30-Year Past Growth Rates	Projected Average Annual		
Company			Yield	Capital Gain	Combined Basis
duPont	2.5%	7%	9.6%	9.0%	18.6%
Union Carbide	2.7	6	8.4	6.8	15.2
Dow Chemical	1.4	10	10.1	12.6	22.7
Hercules Powder	1.6	6	5.0	2.7	7.7
Olin Mathieson	2.0	4	4.2	1.0	5.2
Allied Chemical	3.2	3	5.5	1.8	7.3

Table V

### Mechanical Projection of Average Annual Yield and Capital Gain Results of Investment in Eight Chemical Stocks for the Next Ten Year Period

	Recent	10-Year Past Growth Rates	Projected Average Annual		
Company .	Purchase Yields*		Yield	Capital Gain	
duPont	2.5%	13%	5.2%	22.7%	27.9%
Union Carbide	2.7	. 9	4.4	13.0	17.4
Dow Chemical	1.4	16	3.5	30.8	34.3
Hercules Powder	1.6	6	2.3	7.3	9.6
Olin Mathieson	2.0	13	4.2	22.7	26.9
Allied Chemical	3.2	4	3.9	4.4	8.3
Monsanto	2.1	6	2.9	7.4	10.3
Hooker Chemical	2.4	10 -	4.1	14.7	18.8

\*Derived from estimated 1959 dividends, relative to the approximate midpoint in the 1959 high-low price range for each stock, through November 17, 1959.

average annual capital gain works out at roughly 30% for the entire period of ownership (30 years). That is, the 30th year yield of 52% (on investment cost) is the equivalent of over 10 times the then 5% assumed purchase yield, indicating an average capital gain in the neighborhood of 30% annually for the 30-year period. Consequently, because the average yield and capital gain projections are additive, we reach an extraordinary combined result of slightly more than 50% annually for this hypothetical situation.

Now we arrive at a more practical consideration of the yield and capital gain projections of "growth stocks". The past growth rates for several chemical products stocks have been developed,<sup>2</sup> and applied to very recent purchase yields of these stocks, making possible the computation of average annual yields for a future period of holding. Moreover, depending upon the assumptions made, the average annual capital gain for the period can also be derived, and combined with the projected yield results. To carry out this purpose, Tables IV and V have been prepared.

Table IV projects yield and capital gain potentials forward for the next 30 years, using the developed 30-year past growth rates and recent purchase yields for six chemical equities. We assume in Table IV that the industry matures rapidly as we near the end of the ownership period (1989), and that these securities then sell on a 5% purchase yield basis at the 30th year. Accord-

ingly, duPont stock, purchased in 1959 at a current yield of 2.5%, and assumed to duplicate its past growth rate of 7% compounded annually, should provide annually an average yield of 9.6% and an average capital gain of 9%, or a combined return of almost 19% on investment cost for the entire period. Similarly, we note that Allied Chemical produces a meager combined result of 7.3%.

Table V projects yield and capital gain potentials forward for the next 10 years, applying the 10-year past growth rates and recent purchase yields for eight chemical equities. Unlike Table IV, Table V assumes that the 1959 price-dividend multiplier for each chemical products stock will continue to be applied by the stock market at the end of the period. This means that, 10 years hence, these equities will continue to be widely accepted as "growth situations", justifying high multipliers. Looking at duPont again, its 13% past growth rate, when applied to the 2.5% current purchase yield, should produce annually an average yield of 5.2% and an average capital gain of 22.7%, for a combined outcome of almost 28% for the decade. Allied Chemical, given the validity of its past growth rate, permits a combined outcome of only 8.3%.

### CONCLUSIONS

No special significance or reliability should be attached to these mechanical projections. The projected results are merely the formal outcome of past compound growth rates applied to contemporary purchase yields. For any equity group under study, chances are great that future growth rates, as they materialize, will

<sup>2.</sup> For an account of the statistical methodology used in deriving these growth rates, see Robert E. Kennedy's "Growth Stocks and the Chemical Products Industry", The Analysts Journal, Feb., 1959).

probably depart considerably from their historic growth rates. Indeed, if history is one's guide, or norm, in selecting an appropriate growth rate, a practical problem remains: which of several growth rates, developed for a particular stock, should be employed for forecasting. In the case of Olin Mathieson, its post-war growth rate of 13% varies radically, and perhaps inconsistently, from its abnormally low growth rate of 4% for the past three decade period. This suggests a wide range of practical growth rates that one may select for this stock

The major chemical stocks have enjoyed a phenomenal history of rapid growth and sustained prosperity. Current stock market opinion, as reflected in high multipliers, reaffirms the belief in a charmed future for this industry group. However, it seems likely that some of the "bloom is off the rose", as the long-term performance of the chemical group cannot reasonably be expected to match its exceptional past record. This warns us that, for this equity group, future growth rates will probably be at a slower pace, or for a shorter time span of growth, thus moving toward a condition of "industrial maturity".

Our compound interest and growth period tables should serve, mainly, a useful negative function: a reminder to stay on the side of realism and restraint when dealing with the intractable nature of the so-called

"growth stocks". In cases like the chemical groupdeeply rooted in a glowing history—it is the better part of wise portfolio management to consider their past long-term growth rates and time periods, as, at best, optimum values for "anticipating" the future. If projected results, via historic growth rates, do not measure up to reasonable expectations, then such stocks are patently "overpriced". But, if excellent results are indicated, when based upon conservatively developed and historically significant data, then such stocks can, at least provisionally, constitute an interesting opportunity for investment.

In any case, great caution and conservatism should be exercised in selecting the forecasting variables to be utilized in our tables. What specific growth rates, time periods, and other relevant considerations to employ are matters for the Analyst or investor to resolve to his satisfaction. Developing useful and restrained data, to be projected by our tables, is an uncertain business in its own right. It re-emphasizes the complexity of "growth stock" valuation—the enigma of investments! For in their nature, "growth stocks" constitute, at once, a great opportunity or a vast illusion. Only the future holds the key to present investment decisions, because the longer range future outcome of "growth stocks" in particular, and the stock market in general, is not merely unknown but, methodologically, is unknowable.

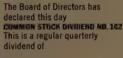


# INTERNATIONAL HARVESTER COMPANY

The Directors of International Harvester Company have declared quarterly dividend No. 166 of one dollar and seventy-five cents (\$1.75) per share on the preferred stock, payable March 1, 1960, to stockholders of record at the close of business on February 5, 1960.

GERARD J. EGER, Secretary

# REGULAR OUARTERLY DIVIDEND





Payable on February 15, 1960 to holders of record at close of business January 20, 1960

> Milton C. Baldridge Secretary January 7, 1960

THE COLUMBIA **GAS SYSTEM, INC.** 

# **BOSTON EDISON** COMPANY

Preferred Dividend

A quarterly dividend of \$1.06 per share has been declared payable on the first day of February 1960 to stockholders of record at the close of business on January 8, 1960 of the Company's Cumulative Preferred Stock, 4.25% Series.

### Preferred Dividend

A quarterly dividend of \$1.19 per share has been declared payable on the first day of February 1960 to stockholders of record at the close of business on January 8, 1960 of the Company's Cumulative Preferred Stock, 4.78% Series.

Common Dividend No. 283 A quarterly dividend of 75 cents per share on the Common Stock of the Company has been declared payable on the first day of February 1960 to stockholders of record at the close of business on January 8, 1960.

Checks will be mailed from Old Colony Trust Company, Boston.

ALBERT C. McMENIMEN

Boston, December 28, 1959

# American Metal Climax, Inc.

COMMON STOCK Dividend No. 137

The Board of Directors has declared a dividend of Thirty Cents (30¢) per share on the Common Stock payable March 1, 1960 to stockholders of record at the close of business on February 19, 1960.

D. J. DONAHUE,

Treasurer.



# COMMON DIVIDEND No. 107

22½ cents per share on the Common Stock, payable March 15, 1960 to stock-holders of record at the close of business February 15, 1960.

The Goodyear Tire & Rubber Co.

By Arden E. Firestone,

Secretary

January 12, 1960

THE GREATEST NAME IN RUBBER



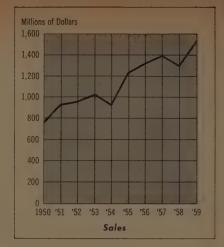
# UNION CARBIDE CORPORATION

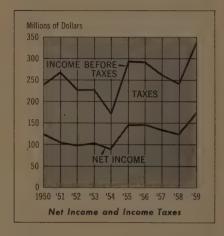
# 1959 Annual Report Summary

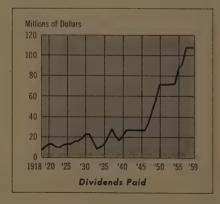
	<u>1959</u>	<u>1958</u>						
Sales	\$1,531,343,824	\$1,296,532,373						
Net Income	171,637,065	124,936,845						
Per Share	5.70	4.15						
Dividends Paid	108,344,828	108,265,402						
Per Share	3.60	3.60						
Earned Surplus	685,493,989	622,201,752						
-	_							
Current Assets	\$ - 714,667,441	\$ 664,097,034						
Current Liabilities	257,204,296	213,802,203						
Total Assets	1,632,250,370	1,530,476,376						
_								
Shares Outstanding	30,097,943	30,093,183						
Number of Stockholders	126,927	126,739						
Number of Employees	74,000	71,500						

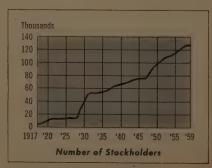


Copies of the complete 1959 Annual Report of Union Carbide Corporation will be furnished on request. An illustrated booklet describing the products and processes of Union Carbide also is available. If you wish copies of these booklets, please write to the Secretary, Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y.









# **ELECTRONICS**

Electronics—the fastest growing major industry—has multiplied its output two and one-half times since 1950, for a growth rate of 11% yearly. Way ahead of chemicals, the second-running major industry, electronics chalked up about three times the 4% growth rate of total industrial production. And, currently, electronics is the fifth largest U. S. industry. In an effort to present the electronics picture (on a real "ground-floor" basis) this publication arranged exclusive interviews with top executives of two electronics firms. George J. Pandapas, president of Electro-Tec, and Herman Fialkov, president of General Transistor, present their views.

# Views of George J. Pandapas

The success of the U. S. missile, rocket and space vehicle programs depends on a vast array of industrial suppliers. In fact, the nation's very defense hinges on the ability of United States industry to produce quality goods on time. But behind every well-known contractor stands a small army (upwards of 3,000) of lesser-known but no less important sub-contractors, the vital vendors who supply the small parts and sub-assemblies so essential to the logistics of defense.

How about the small vendor? Are his fortunes completely dependent on those of the "primes"? In short, is there a future for him? To the Financial Analyst, these and other questions bearing upon sub-contractors need answering, especially so since a great number of vendors are engaged in electronics. And no Financial Analyst need remind himself that electronics issues, the so-called "glamour stocks," have led many a market turn. For this reason, several probing questions are answered here.

[Mr. Pandapas, 42, is president of Electro-Tec Corp., which supplies virtually every prime contractor engaged in missile and space programs with such vital electronic parts as slip ring assemblies and high precision miniature relays. As a small but growing factor in electronics, Electro-Tec has three plants (South Hackensack, N. J.; Blacksburg, Va.; Ormond Beach, Fla.) and a sales volume of \$6 million. Thus, Electro-Tec is representative of many such suppliers, making President Pandapas' views particularly significant and informative.]

# $\mathbf{Q}.$ Mr. Pandapas, is there a future for the sub-contractor?

A. Indeed there is—especially for sub-contractors that produce highly specialized components.

# Q. Well, what other kinds are there?

A. Oh, there are sub-contractors who do assembly work on sub-systems. They may not have the advantages of original engineering and proprietary know-how. Their forte is lower overhead by reason of their size.

# Q. What evidence is there that the need for small electronic parts will continue?

A. Let me answer that one in two parts. First, the evidence that the entire electronic industry is growing by leaps and bounds is all around us and needs no elaboration. Second, so long as the industry grows, it is obvious that the need for small electronic parts will grow also.

### Q. When do you expect demand to reach its peak?

A. It will never reach its peak!

# Q. Won't demand reach a high peak and then level off?

A. Oh, there's no doubt there'll be short periods of leveling or even of recession. But so long as this population explosion continues and so long as the world's technology continues to advance, I can see nothing but growth ahead—especially in the electronics industry because of the great strides made by electronics in all fields of technical endeavor.

# Q. "Technical endeavor?" Can you spell that out?

A. Sure — automated manufacture, communications, transportation, business machines, military advances, space exploration, and so on.

# Q. But if all Government contracts were suddenly cancelled tomorrow, Mr. Pandapas, what would happen to firms like yours?

A. Granted, there's no doubt that we would all suffer a severe, temporary setback. But I'm sure that within reasonable time other industries would take up the slack. I would say that the question is really academic because I've seen nothing from the experts to indicate that this will happen in the foreseeable future.

# Q. How much are companies in your business a creature of the prime contractors? In other words, how dependent are you on them?

A. We are almost wholly dependent on them. But I would like to add that they could not survive without us.

- Q. That's a pretty strong statement. Can you back it up?
- A. Absolutely. You see, production of components requires a great deal of specialized know-how, which a prime contractor must acquire economically. His needs are necessarily limited; he can't support all the research and development necessary to produce components of the quality desired—certainly not at a price that would be in line with that of a sub-contractor, who produces those components for all of U. S. industry.
- Q. Then how much of a factor is competition in your industry?
- A. A very great factor, as it is in every industry. And that's as it should be. Competition forces us to continually improve our products and methods in order to advance—let's call it—the state of art, and at the same time to keep our lead.
- Q. How many other slip ring manufactures are there in the U. S.?
- A. I'll say 10 to twelve. But we produce oh, well more than all our competitors combined.
- Q. Are there standard prices for your products, or are they obtained by bid?
- A. There are standard components in electronics all right—resistors, capacitors, vacuum tubes, transformers, transistors, relays. But our products are all custom items engineered for specific application. In all cases, however, both shelf and custom items are sold on the basis of bid—particularly to firms producing for the Government.
- Q. But doesn't the Government insist on two bids for most every item?
  - A. Yes, but I don't necessarily agree with it.
- Q. As a matter of fact, Mr. Pandapas, you were recently rather outspoken on that very subject, weren't you?
- A. Well, that gets us off on another subject, but . . . Yes, not long ago I did criticize the Government procurement policies that insist on two sources of supply for all components used in their systems, and forces companies to buy on the basis of lowest bid.
  - Q. What's wrong with that?
- A. Well, I maintain that in our missile and space exploration activities, where we are pushing the state of the art, the very best components should be—no, must be used. The Government procurement policies requiring bids and multiple sources of supply forces compromises in those areas which, in the long run, costs us more money than if the best component were used in the first place.
- Q. But wouldn't elimination of the two-sources-ofsupply concept be detrimental to vendors and users both?
- A. In the long run, no! I believe this will do more to stimulate improvements so that those who produce less than the best will be forced to improve their products. Remember—during previous wars there was time to produce the war goods necessary, and multiple sources of supply were important. It was a sound concept then. But in this missile age a war will be won or lost on the basis of effectiveness of the weapons on hand—and the need for the best is obvious.
- Q. How have these Government policies affected your company?
- A. In this way—We've spent a great deal of time and money in developing improved products that are vitally needed. All this costs money and must be reflected in the selling price of our products. When components are bought on the basis of price alone the best products are not always used. Many of these components I speak of have resulted in patents, which give a manufacturer a legal

- monopoly. Still, procurement regulations don't permit buying from a single source.
- Q. Oh, do companies like yours control any important patents?
  - A. Yes.
- Q. And did these patents give you any competitive advantage?
- A. Yes-in all areas but Government procurement.
- Q. Mr. Pandapas, you've said that the "primes" are wholly dependent on their sub-contractors. Well, how would you describe your company's relationship with its prime customers. I mean . . . does a prime contractor ever seek advice from you, or do vendors function only to deliver the goods and that's that?
- A. Our relationship with most prime contractors is decidedly cordial and of a cooperative nature. Those who recognize that component manufacturers are experts in their field, and seek their assistance on problems relating to these components are, significantly enough, the leaders in their respective fields. Also, fortunately, the emphasis on reliability is causing the users to consider components as the highly specialized goods that they are, rather than standard shelf items. And this again encourages closer cooperation between the component manufacturers and their customers.
- Q. How do you feel about renegotiation of Government contracts?
- A. I don't think I'm unique when I say I don't like it. Oh, I can understand the need for it during World War II and Korea, when contracts were placed quickly and without benefit of competitive bidding. However, there are enough checks in the normal course of contract negotiations today, and renegotiation, to my way of thinking, is wholly unnecessary. In fact, it can and most likely does lead to waste and loss of incentive. In the case of the renegotiation of a specific contract, cost-reducing improvements made will result in a lower profit, since the profit allowed is a percentage of the cost.
- Q. Don't you always have to face up to the possibility that an item that you supply today may be cancelled to-morrow?
- A. This is always a possibility. However, sub-contractors who manufacture components sell to all the users, and are not vulnerable to cancellation of specific programs. I'd say that the sub-contractor's position is a great deal more secure than that of a prime contractor.
- Q. What about this business of lead time? Aren't there many cases of prime contractors cutting down on the lead time of their vendors? Doesn't it make it even tougher on you sub-contractors?
- A. Certainly it does. Shortened lead time results from the urgency of new programs and the general financial squeeze. Another reason for shortened lead time is the desire to reduce the cost of inevitable engineering changes and improvements by keeping inventories at an absolute minimum. Sure, it makes it tough to operate efficiently. But, surprisingly, most of us have adjusted to the situation, and have geared our operations to accommodate the shorter lead time.
- Q. Mr. Pandapas, I believe that the total value of all electronic products produced in 1959 came to something over \$9 billion. Now consider this: between 1948 and 1958, the industry's average growth rate was 18%. But in the first five years of that decade, the average rate of growth was 33%, while in the second half it was only 10%. Do you attach any significance to this diminishing rate of growth?
  - A. Well, I'm not intimately familiar with the statistics

of the entire electronics industry, and can only comment on this in a general way. The electronics industry includes radio, TV, communications and other commercial-industrial items. I would say that the average growth rate of 33%, that you refer to, can be attributed primarily to television. It's my opinion that the growth of the military and industrial electronics field, if separated from radio-TV, would show a much more spectacular growth over the last five years.

- Q. Okay, what about the next five? It's been estimated that the electronics industry can be expected to grow at the rate of 9% a year through 1963. Would you call that a fair estimate?
- A. If the term electronics is used in a broad sense, that may be an accurate estimate, yes. But the growth for the commercial, industrial and military segment of the electronics industry will grow at a much greater rate.
- Q. Would you care to hazard a guess as to what that rate of growth may be?
  - A. I would say 20% to 30% a year.
  - Q. That much?
- A. Yes, certainly. In some cases, companies fortunate enough to be engaged in such fields as molecular electronics can grow 100%—or even more!
- Q. Mr. Pandapas, as we know, electronics was once largely radio-TV business. In 1953, for example, military needs accounted for only 13% of the industry's output. But in 1958 the military took 52%. That's a tremendous leap. Do you see an intrinsic danger in this?
- A. My answer to that goes back to one of your earlier questions. I don't think so. As I mentioned before, any slack in the military electronics industry can be more than taken up by the increase in commercial and industrial electronics, after a period of adjustment.
- Q. Haven't there been a large number of small electronic firms going to the trough recently for investment capital?
- A. Certainly. Any small company with a favorable growth situation must eventually go outside for expansion capital. As a matter of fact, at Electro-Tec we financed our own growth out of earnings for 15 years. Only recently, however, we issued 6,000 shares of preferred stock in order to raise capital for a new plant, and we plan to put out a common stock issue to the public in the near future.
- Q. But would you say that the potential of a small electronics firm merits the rather evident public enthusiasm for these issues?
- A. Yes—in most cases, although you'll always find companies both large and small that fall by the wayside. This risk is inherent in the basic philosophy of our entire concept of free enterprise.
- Q. Throughout this interview, Mr. Pandapas, I get the distinct impression that you feel downright confident about the continued rapid growth of the electronic components industry. Am I presuming too much?
  - A. No, sir, you presume correctly.

#### \* \* \*

#### Views of Herman Fialkov

The semiconductor industry, which concerns itself with transistors, diodes, rectifiers, solar cells, etc., is one of the newest and most dynamic areas of our economy. In the marketplace we have seen its impact in the spectacular performance of such companies as Texas Instruments, Fairchild Camera and General Transistor.

In the case of Transitron two young men, the Bakalar Brothers, have created for themselves \$300 million of wealth in about eight years. While the average investor is aware of this new, science-based industry, his understanding of it is vague. He has watched, with awe, the appreciation of semiconductor stocks and looks to the future with trepidation because he does not have a "feel" for the product nor its market. The average investor particularly is timid about the independent producer competing with such giants as Texas Instruments, General Electric, RCA, Westinghouse, Philco, etc.

Is the bloom off the rose? Will cut-throat competition precipitate the industry into concentrated hands? Will the independent producers, that are the only vehicles affording the investor undiluted participation in the industry, survive and prosper? The best-estimate answers to these questions are presented in this second interview.

[Our guest is 37-year-old Herman Fialkov, president of General Transistor Corp., which was one of the first producers of transistors in America. Incorporated in November 1953, the sales of General Transistor Corp. broke past the \$1 million mark in 1956, went on to \$3.3 million in 1957, \$5.5 million in 1958, and \$10.2 million in 1959. The opinions and comments of one of the men principally responsible for this record should be illuminating.]

- Q. Although your sales doubled last year to reach \$10 million, General Transistor is still a small company. How can you, and other small companies, expect to survive in competition with such giants as Texas Instruments, Transitron, RCA, Philco and some dozen more companies all of which are substantially larger?
- A. First, it is generally not known that General Transistor is one of the longest established producers of semiconductor devices. There has always been competition and yet we have been able to grow. Since our inception, we have done better than the industry each year. In 1960, we anticipate a 50% increase in volume compared with an estimated 30% to 35% increase for the industry. The second point is that we are not really a small company in our business. I would guess that we probably rank sixth or seventh among transistor manufacturers. If you exclude industry sales of entertainment type devices that we do not produce, our relative size is even larger. While many of our competitors are larger companies, their semiconductor divisions are comparable or smaller. The third point is that an alert, independent company often has a better feel of the market, has faster turn-about time, and can offer specialized products whose volume would not attract the very largest producers. In summary, we are stronger and more established than most people realize and I see no reason why the policies that were responsible for our past success cannot prevail in the future.
- Q. What are your policies? Do you consider them different than should be adopted by a large company?
- A. Our goal from the start has been concentration on devices for use in commercial and military computers and industrial instrumentation. Many of the larger companies who are also tube manufacturers could not specialize in this way, because they had to protect their interests in the markets for entertainment types, power types, hearing aid

types, communications types, etc. We have consistently endeavored to increase the reliability and performance characteristics of our products while passing on cost savings resulting from improved production techniques to our customers.

Q. What is the semiconductor industry? What is its size, what is its record, and how do you project the future?

A. The semiconductor industry consists of solid state devices that perform more efficiently, more reliably, with small power consumption and in small size functions similar to the vacuum tube. There are several broad categories of such devices, namely, transistors, diodes, rectifiers, solar cells and photo-sensitive units. Included in all these categories are some several thousand different devices, each of which is unique as a result of its physical construction, the material from which it is made, either silicon or germanium, and the process used in its manufacture, such as diffusion, alloy junction, double diffusion, or acid etch, etc. These devices, even in the same broad category, are not homogeneous; they are not interchangeable indiscriminately like light bulbs. While the first point-contact germanium transistor was introduced by Bell Telephone Laboratories in 1948, the industry really only entered its commercial phase in 1955 when total industry sales were \$36,500,000. Since then, the rate of expansion has been rapid, reaching an estimated \$350 million in 1959 and a projected \$450 million or more in 1960. In the next 5 to 7 years, I think the industry will reach \$1 billion in those devices which are presently in use or presently in development in the laboratory. At present, more than half of unit volume but less than a quarter of dollar volume is accounted for by entertainment applications. The more dynamic and important markets are industrial and military, in which we concentrate, which account for less than one half of unit output, but over three quarters of dollar volume. However, this is not the limit of our industry. Solid state physics also is the basis for thermo electricity, which is the direct generation of electricity from heat, electric refrigeration and electro luminescence (wall panels of self-contained light). Each of these new developments in itself some day could support a \$1 billion new market.

Q. It has been said that the development of the semiconductor industry will parallel the pattern of the receiving vacuum tube industry in that the latter eventually shake down into the hands of six or seven large producers. What is your comment?

A. The old electronics industry was dominated by consumer applications which were characterized by large production of standard, mass-producible components. The modern electronics industry has been, and will increasingly be, dominated by industrial and military applications. Here the emphasis is more on quality and ability to deliver than on price. In addition, there will be a larger market for specialty items because of much more variation in end equipments. Hence, the environment of modern electronics is favorable for specialized companies. More important, because solid state physics deals with the nature of matter itself, there will be more opportunity for improved products and new products. Hence, there will be less tendency for standardization than was the case with receiving vacuum tubes. In other words, the semiconductor art has much more room for variation and advancement than vacuum tube technology.

Q. What do you think will be the trend of profit margins in your industry?

A. In the semiconductor industry, there is no such thing as an over-all profit margin. Each of the industry's devices has its own life cycle and corresponding profit margin. Just as in the case of drugs, when a new device is introduced, the margins are fat for a year or so. Then,

as the market develops and competition appears, the margin declines. Thus far, in the military and industrial field, the margin has usually stabilized at a satisfactory level even in a competitive situation. The profit margin of any individual company will reflect its ability to be there early with a good new product and to have a product mix that shows a weighting in favor of such new products.

Q. Why should investors be interested in the semiconductor industry and what advice would you have for the investor?

A. In the past decade, the semiconductor industry has out-paced every other industry in rate of growth. While it is conceivable that this rate of growth in presently known applications may not be as steep in the "sixties," I believe that some of the technology now under development in solid state laboratories will have rapidly accelerating applications in fields thus far untouched by semiconductors. Advanced work now in progress in our laboratories includes application to electro-photography where a solid state film and a transistorized camera combine to snap and develop a photograph instantaneously. A solid state display device which could conceivably replace television and cathode ray tubes, and a solid state memory device are also under development. I would advice the investor have a stake in at least two semiconductor companies and to include an investment in the semiconductor industry among several other industries capable of growing at a much faster rate than the general economy.

Q. How important is the replacement market in your business?

A. While a replacement market exists in the entertainment type devices, there is little or no replacement market in commercial or military markets. Most manufacturers of computers build replacement circuits when the equipment is constructed for use in maintaining the equipment. Thus, the transistors for use in replacement circuits are usually purchased together with those for use in the original equipment.

Q. How heavily are you dependent on government business? What do you think will be the trend on government business in semiconductor devices and what assumptions are you making about the defense program and the international political situation?

A. Approximately 50% of our sales are to prime contractors for military electronics equipment. The Electronic Production Resources Agency has projected a continuously growing trend in the requirement for semiconductors by the government. I believe that the requirement for semiconductors in electronics equipment required to monitor disarmament will match the requirements of the projected defense program. Therefore, the long range effects of the international political situation are not a matter of serious concern.

Q. How important are government research and development contracts in your industry? What has been your company's past experience, what is the present status, and what are your future plans with respect to government research and development contracts?

A. I believe that all of these markets are attractive to a large company, but that a smaller company has a higher potential for development by concentrating on the industrial and military markets. Government research, development and methods contracts are of importance in accelerating progress in these areas, as well as a source of funds for the advancement of technical progress. The government's requirements for undiscovered devices acts as a catalyst in the advancement of semiconductor technology. We plan to increase our efforts to procure more support of this type in order to accelerate our development

in some of the newer areas. We hope to increase our volume of contracts from the present \$150,000 to approximately \$2,000,000.

- Q. Transitron, the only other established producer that is entirely engaged in the semiconductor industry, has been showing substantial profit margins, while General Transistor's profit margins have been declining. How do you account for the difference?
- A. Transitron is a very fine, large, hard-hitting organization that has been in business longer than we. They began by manufacturing diodes which still is one of their mainstays. I don't like direct comparisons, but in general let me say this. Transitron from its beginning was oriented in the direction of silicon diodes for military applications. In addition, it has been successful in obtaining substantial government research & development contracts. We, on the other hand, have emphasized germanium transistors for commercial computer applications. In order to maximize our penetration of the commercial market, we have passed on to our clients, in the form of lower prices, cost reductions achieved through higher volume and more efficient production. In addition, we have been absorbing the cost of our own research and development which last year amounted to about 6% of sales. We are well advanced in the development of our own silicon devices and, in addition, have reached a corporate size where our recent aggressive pursuit of government R & D contracts should begin to bear fruit. Also, certain heavy non-recurring costs that burdened us in 1959 will be behind. Beginning later this year, I expect to see a more favorable trend in our profit margin, vis-a-vis other companies, even though we are not strictly comparable. May I also add that since so many of the other semiconductor producers are divisions of larger corporations, it has generally not been realized how few of them were profitable until only re-
- Q. Why is the profit margin on silicon devices so much higher than on germanium devices and what do you think of the future trend?
- A. Keeping in mind my answer to question five as a general background, silicon devices are relatively newer than germanium types, and the market for silicon is primarily military. In addition, silicon presents a much more difficult manufacturing problem. This accounts for the presently higher profit margins that are associated with silicon. However, it is inevitable that silicon margins will decline whereas the margins on industrial and military germanium devices will be relatively stable. Hence these two broad product categories in the future will be more comparable profit-wise than they are today.
- Q. Will silicon replace germanium in semiconductor devices? Is there anything on the horizon that may replace silicon? What about gallium arsenide and the recent Russian experiments in plastic that have semiconductor characteristics?
- A. A new product never really replaces an old one. It may slow its growth. New products basically create new markets. A good semiconductor company with a capable technical organization keeps abreast of all new technical developments. Germanium, silicon, gallium arsenide and other new semiconductor materials will have advantages and disadvantages in specific applications; thus they will all have a market.
- Q. What about Japanese competition? How can industry and how can specialized companies meet this competition?
- A. Japanese competition has been concentrated in the entertainment market, particularly in portable radios. Its

effect on our company was indirect, as the reduction in the market for entertainment type transistors forced our competitors to divert their capacity to the industrial and military markets. However, this effect is not a cumulative one and foreign competition is presently negligible in our markets. Foreign competition in these markets can best be countered by automation and by specialized service to the customer. General Transistor will have two automatic production lines in operation by the end of 1960 which will give us a new line, under cross license with Philco, of high speed micro alloy diffused transistors primarily for military and industrial application.

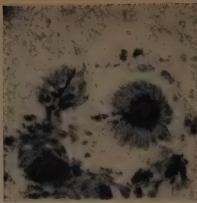
- Q. What about molecular electronics? What effect will this development have on your future business?
- A. Molecular electronics refers to any of several methods of component or circuit manufacture by the deposition or crystalization of thin molecular film. It is conceivable that these techniques presage a revolution in electronics as meaningful as the advent of transistors. General Transistor has a fully equipped thin film laboratory and is now developing a gallium arsenide diode as well as a transistor fabricated by thin film techniques.
- Q. We have heard a lot of talk about tunnel diodes. What would happen to you if they replace transistors?
- A. We intend to do our part in creating a mass market for tunnel diodes in the television and FM radio industries in 1960. The tunnel diode, however, has all the disadvantages inherent in a two-terminal device and it is unlikely that it will replace the transistor in more than a very small percentage of applications. We are now in pilot production of tunnel diodes and are prepared to commence mass production at the first sign of a potential market.
- Q. What is the relationship between government renegotiation and semiconductor sales to military end equipment manufacturers? This question is asked in light of the high profit margins exhibited by semiconductor producers that have heavy indirect military sales.
- A. There is, of course, a contingency that a portion of the profits of these manufacturers will have to be returned to the government. However, there are provisions of the renegotiation act which are favorable to component manufacturers who produce components for both commercial and military markets. This question can only be answered after some experience and history is available.



MARCH-APRIL 1960



Going up for "good seeing." Unmanned balloon-observatory starts its ascent to take sunspot photos. "Project Stratoscope" is a continuing program of the Office of Naval Research and the National Science Foundation.



One of the sharpest photos ever taken of sun's surface. It, and hundreds of others taken by stratoscope, may answer mystery of violent magnetic disturbances on earth.



Exact position of photograph in relation to the total sun surface is shown here. Plotting and photography of precise areas was made possible by airborne RCA television.

RCA REPORTS TO THE NATION:

# REMARKABLE NEW PHOTOS UNLOCK MYSTERIES OF SUN'S SURFACE

Special RCA Television, operating from stratosphere, helps get sharpest photos of sun's surface ever taken

Scientists recently took the first, sharp, searching look into the center of our solar system. It was achieved not by a missile, but by a balloon posted in quiet reaches of the stratosphere.

The idea was conceived by astronomers at the Princeton University Observatory. They decided that a floating observatory—equipped with a telescope-camera—would offer a stable "work platform" from which sunspots could be photographed free of the distortion caused by the earth's atmosphere.

But "Project Stratoscope" encountered an unforeseen and major obstacle on its initial flight. A foolproof method was needed for aiming and focusing the telescope of the unmanned observatory. Princeton asked RCA to help.

A special RCA television system was devised which enabled observers on the

ground to view exactly what the telescope was seeing aloft. This accomplished, it was a simple matter to achieve precise photography—directed from the ground by means of a separate RCA radio control system.

The resulting pictures reveal sunspot activities in unprecedented detail. They provide the world with important information regarding the magnetic disturbances which affect navigation and long-range communications.

The success of "Project Stratoscope" is another example of RCA leadership in advanced electronics. This leadership, achieved through quality and dependability in performance, has already made RCA Victor the most trusted name in television. Today, RCA Victor television sets are in far more homes than any other make.



RADIO CORPORATION OF AMERICA

THE MOST TRUSTED NAME IN ELECTRONICS

## **RADIO**

# and the Booming Next Decade

by Kevin B. Sweeney

TEN YEARS AGO, much of the Radio industry was running scared. The national advertisers, who represented half of Radio's total billings, were departing the premises for an entrancing new panacea called Television. There did not then appear to be enough dollars from local advertising available to cover the loss. Prophets were advising Radio had something under three years to live.

As it turned out, during the Frenetic Fifties, the Radio industry made a spectacular comeback and registered one of the most complete reversals of form in the gaudy history of American business.

The big reason? The people never stopped listening. They listened to different things and they listened in different places—in bedrooms and kitchens and porches and beaches—but nine out of 10 continued to listen, and all the while new advertisers and new advertising techniques were fermenting. The local retailer began spending the money—\$400 million annually in Radio—four times what he spent in those halcyon days when Sunday nights everybody sat and listened to an aging violinist saying: "JellO, again!"

The local advertisers — the supermarkets, the auto dealers, the department stores—helped bring to Radio new techniques that were soon claimed by many medium-sized advertisers and today play a major part in the planning of most of our large advertisers and agencies.

The following figures, posted by the Radio industry as it gathers momentum into the Sixties, reflect the long, lonesome, and finally lucrative road Radio has traveled in the past decade—during the same span Tv was making its widely-heralded invasion of America's living room.

In 1946, there were 1,000 AM Radio stations. Today there are something like 3,600 AM stations, and over 700 FM stations.

In 1950, there were 83 million radio sets in working order in the U. S. Today, there are 155 million, averaging better than three sets to every U. S. household. And these sets are being used; nine out of 10 people

at least a single working set.

Car Radio Sales Zoom

listen to Radio weekly in the 96.3% of homes that have

Consider also the size of Car Radio alone. The latest Car Radio count is 40.5 million, which compares in size itself—with no help needed from in-home and portable sets—with the total count of all other major media.

For example: There are now about 44 million homes equipped with Tv sets, 16.6 million morning newspapers are sold daily, and the Car Radio count of 40.5 million is bigger than the combined circulation of the six largest weekly magazines.

But Car Radio, 1960, is measurable in a lot more than numbers. It's a vital, comforting "necessary accessory" to the millions of drivers who would rather own a Car Radio than almost any other extra. Car Radio gets almost an hour of daily listening from drivers and their passengers, considerably more time, by the way, than the same people spend with daily newspapers.

Right now, Radio is one of two media showing any real growth when stacked up against a formidable yard-stick—the population growth in the U. S. In 1959, better than 16 million sets were sold, most going into bedrooms, kitchens, dens — places relatively free from Tv competition. Tv's growth last year was also impressive—about six million sets—but nothing like the sky-rocketing sale of radios.

While Radio continues its almost complete saturation of American homes and cars, Tv appears—after its first explosive decade—to be orbitting at a very great height. Although it is still a Colossus, Tv is less imposing than it was a few years ago. Witness this:

Radio actually surpassed Tv in terms of adults reached during the summer of '59 for eight straight weeks. The independent research firm of Sindlinger and Co. checked Radio listening everywhere—at home, in cars, at beaches, in boats, etc.—and declared Radio clearly ahead every day for almost two months. Radio had been able to accomplish this considerable feat only a single week in 1958.

And the wave continues! Look into the bright, split-levels of the future—middle-income suburbs like Levittown, N. Y., and Littleton, Colorado—and you'll see how completely Radio is ingrained into young America's life. Eight out of 10 bedrooms in these communities of tomorrow have radios; nearly three-quarters of the kitchens with radios; almost every car is Radio equipped.

Kevin B. Sweeney, president of Radio Advertising Bureau, Inc., has spent his working life in radio broadcasting, mostly in executive sales and promotion. A native Californian, Mr. Sweeney is a graduate of the University of Southern California, and has held executive positions with both Columbia and American Broadcasting. R.A.B. is supported by more than 1,100 radio stations and three of the national networks.

#### RADIO'S GROWTH BY 1970

Radio enters the Sixties with confidence. It has weathered a decade of conflict, confusion and drastic charge, where the men, you might say, were separated from the boys.

In 1959, Radio, after shaking off the effects of a recession hangover in the first quarter of the year, made impressive gains, showed a dollar volume gain of about 7% over 1958. This is as good as the growth average for all advertising media, but the signs are strong that Radio will now grow faster than average.

And now, a look to the future. Here is the way Radio will shape up in 1970.

By 1970, there will be another 1,000 AM stations authorized, operating mainly in cities of 50,000 or less, although every one of the top markets can count on at least one new Radio station and quite possibly two.

There will be 80 million bedroom sets, 55 million

kitchen radios, 80 million cars radio-equipped, 25 million in pockets and purses, listening posts everywhere. I predict a total of over 250 million radio sets in operating order, an annual set sale of 25 million sets.

Today, relatively few stations are now held by companies with listed securities. Literally hundreds will be so owned by 1970.

Stations will be highly specialized as to editorial content. In the larger cities there will be two or three "general" stations catering to popular tastes, but three-quarters of stations will—the Federal Communications Commission willing—concentrate on one type of music or on news to the exclusion of other material.

Radio's dollar volume will be doubled by 1970, with much of the accelerated growth coming from local advertisers. Radio's three leading advertisers in 1970 will be the grocery chain, the automobile dealer and the department store.

# Resurging Radio and the Industry

by Alan Kenneth Gage

Kevin B. Sweeney, with an advertising man's enthusiasm, has told us in the foregoing article of the great and rapid recovery of radio during the Frenetic Fifties. Even bigger growth is predicted for the (Soaring) Sixties. How have affected companies fared, and will the expected growth mean greater profits in the next decade?

To begin with, while radio stations were experiencing the above-mentioned growth of numbers, radio manufacturers experienced severe attrition of numbers, a 60% reduction from 100 companies to the presently remaining 40. At the same time radio set production held relatively stable, averaging 12½ million units per year during the decade. This of course has enabled those remaining 40 manufacturers each to have a larger slice of the pie, making for more efficient utilization of capacity and better mass production. Thus, television has been a two-edged sword; putting some 60 radio manufacturers out of business completely on the one hand, and, yet on the other, considerably increasing the radio business of those who had the foresight or fortitude to remain, to say nothing of the fact that Tv itself has been a good business.

In 1959 Tv set sales approximated \$1¼ billion, and those of radio \$550 million. Japanese imports, mainly in portables, increased from 650,000 sets in 1957 to almost four million in 1959. This competition, however, has probably reached its peak as the cheap port-

able filled a momentary gap and U. S. manufacturers are now meeting the challenge with similar and competitively priced articles.

Most of the major companies make both radio and Tv sets, and in addition many are further diversified in other electrical and electronic fields. General Electric, for example, is one of our largest radio and Tv producers, but this is only a very small part of its \$4 billion annual volume. While radio and Tv are now mature (no longer fighting for each others audience), the acceptance of color Tv, during the sixties, will accelerate growth of the business from both the manufacturers and broadcasters standpoint. In addition, many companies are making transistors, those great new building blocks of the electronic industry, and rapid growth in this field is expected to continue throughout the decade.

A more mature industry, therefore, appears to be a major result of the resurgence of radio. But while more mature, it is, nevertheless, one of the fastest growing of all our industries. Radio and Tv sales are expected to increase 8% in 1960 alone (better than double rate of growth of the economy), and the electronics industry is expected to go from \$13 billion to \$26 billion in the next five years—a growth rate three times that of the general economy. The smaller number of larger companies, growing rapidly in electronics, and maturely in radio and Tv, are looking forward with confidence to the sixties when the predicted upsurge of family formations will have its favorable impact.

Following are interesting statistics of some of the major companies in manufacture of radio and Tv, and in broadcasting:

Alan Kenneth Gage is manager of the research department of Parrish & Co. He is also a member of the Program Committee of The New York Society of Security Analysts and a graduate of Yale University.

Company		Sales (Million \$)	Depreciation (Million \$)	Earnings Per Share (\$)	Price Range
General Electric	1959	4,250 E	125	3.00 E	97 3/4 - 74
	1949	1,614	48	1.45	14 1/8 - 11 3/8
RCA	1959	1,375 E	22.2	2.65 E	73 1/4 - 43 1/8
	1949	396	8.5	1.58	14 3/8 - 9 5/8
Westinghouse Electric	1959	1,911 E	48	2.43 E	55 3/8 - 35 1/4
	1949	946	14	2.48	33 - 20 5/8
Admiral	1959	200 E	<b>4.</b> 3	1.60 E	29 1/2 - 17
	1949	112	.6	3.43	16 - 6 1/8
Emerson Radio	1959	67 E	.4	1.25 E	26 5/8 - 12 1/8
	1949	41	.1	1.57	7 5/8 - 5
Hoffman Electronics	1959	47 E	.6	1.16 E	37 - 22 3/4
	1949	12	.04	1.25	3 3/8 - 3 5/8
Magnavox	1959 1949	$90.6 \\ 24$	1.5 .2	1.38 1.00	40 3/8 - 24 1/4 9 7/8 - 2 1/2
Motorola	1959	290 E	3.1	7.50 E	165 1/4 - 57 1/2
	1949	82 ·	.3	3.00	12 1/8 - 6 3/8
Philco	1959	398 E	6	1.67 E	36 3/4 - 21
	1949	215	2	1.51	19 1/4 - 10 7/8
Zenith Radio	1959	250 E	1.3	5.75 E	136 3/4 - 59 3/8
	1949	99	.6	1.78	5 3/4 - 3
Columbia Broadcasting	1959	· 445 E	7.8	3.25 E	48 3/4 - 35
	1949	75	1.3	0.80	9 1/2 - 5 5/8
ABC Paramount(Earliest date available for complete figures)	1959	280 E	7	1.87 E	33 5/8 - 20 1/2
	1952	165	7	1.34	21 1/4 - 11 1/2
Storer Broadcasting	1959	25 E	1.5	2.00 E	33 1/2 - 24 1/4
	1953	15	.6	0.94	7 3/8 - 7

#### E -- Estimated.

All figures adjusted for stock splits. For depreciation, mostly 1958 figures are used.

# THE GREATEST RESOURCE OF ANY REGION IS ITS HUMAN RESOURCE. OUR AREA POSSESSES A LARGE, SKILLED AND VERSATILE WORK FORCE.

This quotation, from Detroit Edison's Annual Report for 1959, sums up Michigan's present economic leadership and points the way toward even greater pioneering in research, scientific development and utilization of skills for a promising future. It highlights, too, Detroit Edison's endeavors to bring greater opportunities to the people and communities it serves in Southeastern Michigan.

The Annual Report also outlines many other phases of Detroit Edison's continuing record of service to its million and a quarter customers. For example, total investment in the service area is over \$1.1 billion and its electrical generating capacity has grown to 3% million kilowatts.

Partners in this electric enterprise are nearly

106,000 Detroit Edison shareholders—70% of them in Michigan—who received dividends at the rate of \$2.00 per share in 1959, and the Company employes, who again achieved outstanding leadership in electric industry operations.

The people in Michigan look to the future with confidence. Detroit Edison will continue to provide them with versatile electric energy and industrial leadership, to better use both natural and human resources.

For a copy of the 1959 Annual Report write—

THE TREASURER
THE DETROIT EDISON COMPANY
DETROIT 26, MICHIGAN

March-April 1960

At 000 00 01 GMT March 1, 1960 Martin logged its 457,080,000th mile of space flight

### Marginal Opportunities in U.S. Government Securities

by Arthur L. Carter =

Editor's note: It should be emphasized that borrowing on government bonds, for speculative purposes, has been frowned upon by the U. S. Treasury, particularly for a period of the past 18 months, and its displeasure communicated to banks, thus limiting the operation only to those having close banking connections and/or affiliations. It is conceivable that even short-term government securities—1964 or 1965 maturities—could fluctuate as much as three points, which could involve the need of putting up additional collateral against any loan incurred, thus reducing the overall return as computed in this article.

THE PREPONDERANCE OF INVESTMENTS which have tax savings advantages are geared to the investor in a high income tax bracket. The following analysis develops an investment vehicle which provides a high return to investors of any tax bracket. Furthermore, the investment possesses a minimum degree of risk, and a marketability that far exceeds any other security investment.

The purchase of intermediate term U. S. Government bonds or notes, in some cases at a 10% discount, provides a built-in capital gain which is taxed at the maximum rate of 25%. The greater proportion of the funds to purchase the U. S. Government securities can be obtained from a bank or other lending institution borrowings. The collateral for the debt is the bonds or notes themselves. The interest on these borrowings is tax deductible.

Let us assume that an investor's incremental income is taxable at a 50% rate. In today's market one can purchase a 25% U. S. Treasury bond—Proposal "A"—due 2/15/65 at 90. Let us further assume that our investor can borrow up to 95% on the purchase of Government bonds or notes at an interest rate of 5%. This assumption is not unrealistic in today's money market.

To purchase 100 bonds of the above coupon, we will assume an investment of \$5,000 + an average yearly net interest cost. Thus, the average investment in this case can be considered to be \$7000. This is an average of the annual net cash outlay over the life of the investment. The initial investment is \$5000. At the end of the first year the net capital outlay is the initial investment plus the net interest cost of \$800 or \$5800. The average investment during the first year is therefore \$5400. Each succeeding year is computed in this way. The overall average investment is finally computed by:

$$$5400 + $6200 + $7000 + $7800 + $8600 = $7000$$
5 years

Arthur L. Carter is an associate in the Corporate Financing and New Business Department of Lee Higginson Corporation. He holds an A.B. from Brown University and a Master's degree from Dartmouth College. Currently, Mr. Carter is engaged in doctoral work in statistics and economics at New York University.

Then, \$85,000 is borrowed from a lending institution against delivery of the bonds. The income proceeds on 100 bonds is \$2,625 per annum. Interest cost on \$85,000 at 5% is \$4,250 per annum. Net cost to the investor before giving effect to an allowable tax deduction is \$1,625 per annum. After giving effect to the interest deduction, the net cost is \$812 per year. On or about Feb. 15, 1965, or five years from now, these bonds can be sold or will be redeemed at par. This will realize the investor a capital gain of \$10,000, which, taxed at a 25% rate, shows a net after tax profit of \$7,500.

The total five year cost of carrying this investment is  $5 \times $800 = $4,000$ . The net after tax return over the five year period is \$7,500 less \$4,000 or \$3,500. This is a yearly return of \$700 on a \$7,000 investment or an after tax return of 10.0%. It is obvious that the return is incrementally higher for investors of a higher tax bracket. No allowance has yet been made for discounting the present value of a future stream of earnings. In the examples outlined no return is realized until the bonds reach maturity. This allowance is usually made qualitatively; however, a simple calculation can accurately quantify the discounted cash flow of the return on the proposed investment. If we discount the future stream of earnings at a rate between 3% and 5%, the return on investment will be reduced roughly by 10%. For comparison purposes, this allowance does not have to be made for it is seldom applied to other investment

We have developed two additional proposals which are based on an incremental taxable income rate of 30%. This proposal calls for the purchase of three year notes with a 25% coupon and 2 year notes with a 21/2% coupon. The advantage of proposals "B" and "C" is the shorter maturity which reduces the average net investment and therefore increases the return on investment.

Cost	\$4250 2800
Net Profit Net Profit Per Year Average Investment	\$1450 \$ 725 \$6400
Annual After Tax Return on Investment	11.3%

(The return on investment is greater than this since this computation is based on a 2 year maturity. Actually the maturity is one year and 10 months.)

A simple comparison of this investment vehicle with tax exempt bonds presents some of its outstanding advantages.

#### Proposal "A"

#### U.S. Treasury Bonds 2\% % 1965 - Market Price - 90

Year	Interest Income	Interest Cost	Net Cost (Before Deduction)	Net Cost (After Deduction)	Profit Pre-Tax	Profit After Tax (25% Rate)
1	\$2625	\$4250	\$1625	\$ 812		-
2	2625	4250	1625	812		
3	2625	4250	1625	812		
4	2625	4250	1625	812		
5	2625	4250	1625	812	\$10,000	<b>\$7500</b>
				\$4062		\$7500
Capital Cost	Gain		\$7500 4062			
Net Pro	ofit	_	 \$3438			
Net Pro	ofit Per Year		\$ 687			
	e Investment After Tax		\$7000			
Retur	n on Investment	t .	9.9%			

Proposal "B"

U. S. Treasury Notes 25/8 % 1963 - Market Price - 93

Year	Interest Income	Interest Cost	Net Cost (Before Deduction)	Net Cost (After Deduction)	Profit Pre-Tax	Profit After Tax (15% Rate)
1	\$2625	\$4400	\$1775	\$1242		
2	2625	4400	1775	1242		
3	2625	4400	1775	1242	\$7000	<b>\$5950</b>
				\$3726	4	<b>\$5950</b>
Capital	Gain	\$5	5950			
Cost		8	3726			
Net Pro	ofit '	\$2	2224			
Net Pro	ofit Per Year	\$	741			
	e Investment After Tax	\$€	3200			
Retur	n on Investmen	ıt 10	.2%			

Proposal "C"

U.S. Treasury Bonds 21/2 % 1961 - Market Price - 95

Year	Interest Income	Interest Cost	Net Cost (Before Deduction)	Net Cost (After Deduction)	Profit Pre-Tax	Profit After Tax (15% Rate)
1	\$2500	\$4500	\$2000	\$1400		*******
2	2500	4500	2000	1400	\$5000	\$4250
				\$2800		\$4250

(1) The after tax return on investment is on the average 3 times higher than triple A tax exempt bonds.

(2) Tax exempts have real advantage only to investors in a relatively high tax bracket. U. S. Government bonds or notes purchased on the above basis offer a high return to all investors regardless of tax bracket.

(3) No municipality has the credit rating of the U. S. Government.

(4) High returns can be found on maturities as short as 2 years.

(5) Marketability of U. S. Government bonds or notes far exceeds that of tax exempts. For large pur-

chases a real savings on the buy as well as on the sell side.

The risks of this investment are almost wholly dependent upon the cost of carrying the loan. A breakeven point can be determined which is the point at which the net cost over the life of the loan equals the net capital gain of the purchase. Therefore, a higher interest cost has a less severe effect on the investor in the higher tax bracket.

The above analysis has as its basic premise the fact that the U. S. Government will pay off its obligations at maturity.

Of almost equal importance is the treasury department's tax treatment of the sort of investment outlined in this memorandum. The two important tax questions are:

- (a) Is the sale or redemption of Government bonds, purchased at a discount and held for more than six months a long term capital gain?
- (b) Is the interest used to borrow for the purchase of the bonds or notes an allowable deduction?

The answer to (a) is clearly established in the case of Goodstein v. the Commissioner of Internal Revenue, dated August 1958. A gain on redemption of debentures in registered form acquired at a discount and held for more than 6 months is held properly reported as long term capital gain.

The rationale for (b) has been generally established in the cases of Fox v. Commissioner of Internal Revenue, Goodstein v. Commissioner of Internal Revenue, and Sonnabend v. Commissioner of Internal Revenue. If an "economic gain" can be realized without the tax advantages implicit in the proposal, the interest cost is considered an allowable deduction. It can be clearly shown that there is an economic gain in the above proposal without the tax benefits. In the cases cited, a disallowance of the interest deduction was generally upheld where the transaction lacked substance and was considered insufficient to create real indebtedness.

Author's note: The numerical computation in this article is based on prices and interest rates as of January 1960. Due to fluctuations of both variables (prices, interest rates) any specific investment action must be predicated on a computation as of that moment in time.

# Allied Chemical's Lecture Series To N.Y.S.S.A. Available on Request

In the opinion of many observers, one of the more significant symptoms of the increasing stature of the profession of Financial Analysis has been reflected in the changing attitude of progressive corporate management.

Just as advocates of prudent investment policies, which are directed toward sensible growth, are gradually edging out the get-rich-quick "hot tip" artists in a kind of inverse Gresham's Law, so is the overall quality of corporate information on company operations being upgraded. The old spot announcement on a fortuitous development is being discarded in favor of consistent release of all relevant data, good and bad.

One of the most important moves in this direction has been the willingness of a few companies to undertake the imposing task of dissecting the operations of the industry of which they are a part, as an aid to more enlightened public understanding.

Under the sponsorship of the Education Committee of the New York Society of Security Analysts, several such industrial seminars have been held. As a result of wide popular demand, some of these lecture series will be published. One series is now available for distribution, "The Chemical Industry," as presented by the Allied Chemical Corporation.

Copies of this excellent 120-page publication may be obtained without charge by writing to: *Readers Service*, The Financial Analysts Journal, 82 Beaver St., New York 5, N. Y.

## **Newport News Shipbuilding and Dry Dock Company**

Quarterly Statement of Billings, Estimated Unbilled Balance of Major Contracts and Number of Employees

(Subject to audit adjustments,

	Throo Fiscal	Months Ended	Year	Ended
Billings during the period from ship-	December 31, 1959	December 31, 1958	December 31, 1959	December 31, 1958
building, ship conversions and repairs, hydraulic turbines and other work	. \$46,923,377	\$60,499,466	\$196,070,624	\$180 <b>,587</b> ,648
Estimated balance of major contracts		ember 1959	At December 31, 1958	
unbilled at the close of the period .	. \$277,6	69,961	\$350,6	50,514
Equivalent number of employees, on a 40-hour basis, working during the last full work-week of the period	. 14,	389	11,	723
On November 30, 1959 the Company subr cargo vessels for States Steamship Compar	nitted a bid of \$44,5 ny which has been de	39,340 for the consignated officially	struction of four Mai as the low bid.	riner-type
The Company reports income from long-tel	rm shipbuilding contro	acts on the percent	age-of-completion I	oasis; such

The Company reports income from long-term shipbuilding contracts on the percentage-of-completion basis; such income for any period will therefore vary from the billings on the contracts. Contract billings and estimated unbilled balances are subject to possible adjustments resulting from statutory and contractual provisions.

By Order of the Board of Directors
R. I. FLETCHER, Financial Vice President

January 27, 1960

# When Sales Told Operating

what was needed to make Republic Steel more competitive

(\$375,000,000 FOR INSTANCE)

A panel of top operating men sat at the front of Republic's meeting room last summer.





Sales Mgr., Sam Crabtree, was the M. C., under his favorite motto, "The Sales Department is not the whole company, but the whole company is the Sales Department."

The audience was mostly district sales managers.



This meeting was called so that each district sales representative could state what service he would like to see improved or extended or added in his territory. For example, one sales manager thought he could sell more to a major customer if certain slitting equipment were added. Another said he could gain business if facilities for additional finishes were provided. And so the sales department detailed what they thought the operating department should do to increase Republic's competitive ability.

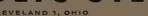
In the audience were Republic's top officers, president T. F. Patton (second from right, 1st row) and chairman of the board, Charles M. White (extreme right). After the sales representatives outlined their suggestions, with back and forth comment from the operating panel, Mr. White turned to Ernest Johnson, Vice President in Charge of Operations, with the question, "What do you think of that, Ernie?"

A faint voice replied, "I ran out of money at 10 o'clock this morning." But shortly after this meeting, Republic announced its \$375,000,000 capital improvement program.

Interchange of ideas—direct and personal—between sales and operating people, with fast action from top management, is typical of Republic's flexible, speedy internal system.



## REPUBLIC STEEL®



World's Widest Range of Standard Steels and Steel Products



Money is—despite its popularity—a widely misunderstood commodity.

As a tool of business, it needs to be sound, dependable as much as any other tool, in order to provide predictable performance from year to year. Sound money is indispensable for prosperity, for national strength, and for the return of personal economic integrity in this country.

# To Finance Unprecedented Power Needs

by Brig. Gen. Herbert D. Vogel

SOMETIME IN 1960, America's financial institutions will analyze a new security coming to market. It will be issued by an agency of the Federal Government, yet it will not be guaranteed by the United States. It will be backed instead by the revenues of the nation's largest electric power system—that of the Tennessee Valley Authority. The new investment will be TVA power revenue bonds, the *first* securities to be sold publicly by TVA

The initial sale of bonds is not expected before July 1, but, within the next five or six years, the principal amount outstanding is expected to be close to \$750,-000,000. The purpose of these bonds is to help TVA finance the power needs of a system whose rate of growth has been unprecedented in the electric utility field.

In the 20 years since 1940, TVA generating capacity has multiplied 10 times; it has doubled in the past five years. Electric power sales in the area have risen from 3.5 billion kwh in 1939 to nearly 60 billion kwh in 1959—about 10% of the nation's total electric sales. Homes, farms, businesses and industries are increasing their use of TVA electricity at a rate exceeding 10% a year. To cope with this growth in demand, new generating capacity of upwards to a million kw will be needed annually in the next few years. The cost of facilities to provide the capacity will be about \$200 million per year.

To appreciate the setting in which the new TVA power revenue bonds will be sold, it may be helpful to examine the structure of TVA itself. A corporation owned in its entirety by the United States Government, TVA, while a part of the executive establishment, is independent of any departmental branch. All of the powers of the corporation are vested in a Board of Directors consisting of three members, each of whom serves a nine-year term, one term expiring every three years.

#### Monumental Achievements

The corporation was established in 1933 by act of Congress with broad powers to develop the resources of

Brig. Gen. Herbert D. Vogel (U. S. Army, Ret.), is chairman of the board, Tennessee Valley Authority. Before assuming his present position in 1954, he was Lieutenant Governor of the Panama Canal. A graduate of West Point, General Vogel helds engineering and chemical degrees from the University of California, Berlin Technical University and the University of Michigan. His Board and Society memberships are legion.

the Tennessee Valley and adjacent region. Over 26 years it has brought substantially under control, with the construction of 20 dams, a river which is the fourth largest in the United States in terms of streamflow, and one of the country's most productive in terms of its hydroelectric potential. Storage dams on the tributary streams of the Tennessee River impound excess waters for flood control purposes, releasing the stored water to generate power when floods are not threatening. The mainstream of the river has nine large dams creating a series of slack water lakes, or reservoirs, which have made a navigable water stairway extending 650 miles from the Ohio River to Knoxville, Tennessee.

The famous World War I nitrate plants at Muscle Shoals, Alabama, have become a national center of chemical research in fertilizer and munitions. They are now the hub of a country-wide program of adult education among farmers, conducted in conjunction with state agricultural colleges, in the modern use of chemical plant nutrients.

The production and transmission of electric power, however, is TVA's only commercial enterprise. Power accounts are—and have been since its inception—kept separately from those of non-power activities. Its financial statements are compiled according to the standard requirements set by the Federal Power Commission for all electric utilities. All accounts are audited yearly by the General Accounting Office, the "watchdog" of Congress over executive expenditures; and the audit reports are available in published form.

TVA power serves an area of 80,000 square miles with a population of more than 4,500,000 spread over parts of seven states—Tennessee, Kentucky, Mississippi, Alabama, Georgia, North Carolina, and Virginia. From a sales standpoint, TVA is primarily a wholesaler of electric power. It transmits and sells electricity to 150 locally owned distribution systems, usually municipally owned in urban areas, and cooperatively owned in the rural sections. Two small private companies also distribute TVA power. These 152 local systems serve 1,400,000 customers, including households, farms, businesses, and the great majority of the area's industries.

About 25 large industrial users of power are served directly by TVA rather than through local distributors. These include Air Reduction Company, Aluminum Company of America, B. F. Goodrich Company, Bowaters Southern Paper Corporation, Diamond Alkali Company, General Aniline and Film Corporation, Hooker Chemical Corporation, Monsanto Chemical

Company, National Distillers & Chemical Corporation, Pennsalt Chemicals Corporation, Pittsburgh Metallurgical Company, Reynolds Metals Company, Stauffer Chemical Company, Tennessee Copper Company, Tennessee Products Company, and Union Carbide Corporation.

#### Huge Power Output

The TVA power system also serves two large plants of the Atomic Energy Commission at Oak Ridge, Tennessee, and Paducah, Kentucky, as well as the Army's Redstone Arsenal, the missile and rocket research center at Huntsville, Alabama, and the Air Force's wind tunnel research facility at Tullahoma, Tennessee. Combined, the Federal defense agencies alone use about half of all the power generated. The atomic installations require from TVA substantially more electricity than is used in New York City. Interestingly, these Federal agencies, due to their high load factors, can be supplied from one-third of TVA's generating capacity.

The generation and transmission system serving all TVA customers had, on January 1, 1960, a generating capacity of 11,386,710 kilowatts. This comprises not only the hydro and steam generating facilities of TVA itself but 425,960 kilowatts of capacity generated by hydro plants of the Aluminum Company of America, and 571,000 kilowatts of capacity generated at hydro plants of the U.S. Army Engineers on the Cumberland River system. The Alcoa dams are integrated with the TVA river control system under an agreement between TVA and the company. Cumberland River power is sold to TVA by the Southeastern Power Administration, an agency of the Department of the Interior. Including these non-TVA facilities, the overall capacity of the power system consists of 3,739,460 kilowatts of hydro capacity and 7,647,250 kilowatts of steam capac-

The generating plants of the power system are interconnected by a transmission network consisting of 12,000 miles of high voltage lines and 400 sub-stations; and the system is joined to neighboring power systems at 21 points. TVA has agreements with adjacent companies, such as Middle South Utilities, the Southern Company, and American Electric Power, for sale, purchase, and interchange of power for economy and other mutual benefits.

At the first of the year, TVA had under construction 259,200 kilowatts of hydro generating capacity and 1,600,000 kilowatts of steam capacity. In addition, a steam turbogenerator of 500,000 kilowatts was on order for installation at a location not then determined. The total of presently projected plant expansion thus amounts to 2,359,200 kilowatts.

This, then, is the overall picture of TVA's physical plant. Until 1953, funds for the construction of both hydro and steam power generating facilities were obtained by TVA from three principal sources: Congressionally appropriated funds; the proceeds from a bond issue (\$65,000,000) sold to the RFC and the Treasury; and the earnings of the power system itself. These bonds

have all been retired with power revenues. Reinvested earnings have accounted for one-third of the total \$1.7 billion of TVA power assets. Since fiscal 1953, no appropriations have been provided to begin the construction of needed capacity. All new generating units added to the system, begun since that time, have been financed from the income of the power system alone.

#### CONGRESS APPROVES BOND ISSUE

A source of additional capital funds was obviously necessary and TVA recommended early in 1955 that it be authorized to market bonds guaranteed by the revenues of its power system. President Eisenhower subsequently recommended it to Congress but Congress did not complete action on the necessary legislation until August 1959.

The amendment approved by the President on August 6 authorizes TVA to issue up to \$750,000,000 of power revenue bonds outstanding at any one time. Maturity will be up to 50 years from the issue date and proceeds must be used *only* for additions and improvements to the TVA power system, *not* for other phases of the TVA resource development program. Sales of TVA revenue bonds will be coordinated with the Secretary of the Treasury.

The amendment also provides that TVA bonds "shall be lawful investments and may be accepted as security for all fiduciary, trust, and public funds, the investment or deposit of which shall be under the authority or control of any officer or agency of the United States." They are legal for purchase by commercial banks for their own account. They are exempt both as to principal and interest from state and local taxes except estate, inheritance, and gift taxes, but interest is subject to Federal income taxes.

The amendment provides that principal and interest of the bonds "shall be payable solely from the Corporation's net power proceeds." Net power proceeds are defined as "the remainder of the Corporation's gross power revenues after deducting the costs of operating, maintaining, and administering its power properties . . . and payments to states and counties in lieu of taxes but before deducting depreciation accruals or other charges representing the amortization of capital expenditures, plus the net proceeds of the sale or other disposition of any power facility or interest therein, and shall include reserve or other funds created from such sources." The legislation specifies that TVA bonds "shall not be obligations of, nor shall payment of the principal thereof or interest thereon be guaranteed by, the United States."

#### How TVA Revenue is Assured

To assure the adequacy of power revenues the Corporation is directed to "charge rates for power which will produce gross revenues sufficient to provide funds" for operations, payments in lieu of taxes, debt service on outstanding bonds, payments to the Treasury, and "such additional margin as the Board may consider desirable for investment in power system assets, retirement of outstanding bonds in advance of maturity, addi-

tional reduction of appropriation investment, and other purposes . . ."

Also a part of the revenue picture are the provisions for (1) repayment of the Federal appropriation investment in power facilities and (2) the payment to the Treasury of a return on the unpaid balance of this investment.

Under the first provision, TVA shall pay \$10 million for each of the first five years; \$15 million for each of the next five years; and \$20 million in each fiscal year thereafter, until a total of \$1 billion of the appropriation investment has been repaid. This will leave some 54 years from now a Federal investment in the power system of about \$200 million derived from appropriations. These payments, however, will not reduce the Federal equity in the system since the payments represent merely a transfer of funds between equity provided by appropriations and equity provided from earnings.

Under the second provision, the TVA must pay a return on the appropriation investment equal to the computed average interest rate payable by the Treasury on its total marketable public obligations applied to the outstanding appropriation investment. Both provisions become effective in 1961, and payments under them may be deferred for as much as two years. They are also subordinate to annual requirements for debt service on the revenue bonds.

To illustrate the indicated coverage on the bonds from the President's budget message projecting figures for fiscal 1961, total operating revenues will be \$266.3 million; total operating expenses will be \$205.7 million; and net power income is expected to be \$60.6 million. The provision for depreciation is indicated to be \$50.9 million. This amount, coupled with the net power income for the year, makes a total of \$111.5 million of net power proceeds which would be available for debt service, payments to the Treasury, and reinvestment in power generation and transmission facilities. Again, the debt service has prior call on this entire "cash flow" as against the payments to the Treasury and the return on the appropriation investment.

#### Geographic Expansion Limited

A further provision of the new legislation, not financially related to the bond question, is the section imposing a limitation on geographic expansion of the TVA power service area.

The TVA power system grew to its present size during more than a quarter century of steady and rather rapid increase in the conventional peacetime uses of electricity, sharply accentuated by the needs of defense during periods of war emergency. The installed capacity increased from 1,100,000 kilowatts in 1939 to more than 2,500,000 kilowatts in 1945; generation of electricity increased from less than 2 billion kilowatt hours to nearly 12 billion kwh.

Beginning in 1950 the Government's build-up of its atomic defense plants in the Tennessee Valley area required the construction of huge amounts of steam generating capacity. Fuel generation was required since

the hydroelectric potential of the river had been utilized virtually in its entirety by projects already built or planned. Consequently, between 1950 and 1956, the capacity of the TVA system rose from 3,000,000 kw to nearly 10,000,000 kw, and system generation increased from 17.5 billion kwh to 57.5 billion kwh.

During the fiscal year 1959, the total power input of the system was 62.6 billion kwh. System generation amounted to 61 billion kwh. Sales totaled 57.2 billion kwh, of which nearly half—28.5 billion kwh—were delivered to the AEC and other Government defense agencies. The 29 large industrial plants served directly by TVA received 9.5 billion kwh and the local distribution systems, 19.2 billion kwh. Of the remainder, 3.6 billion kwh went to neighboring power systems and to Alcoa in return for power generated at its hydro plants. Transmission losses amounted to 1.8 billion kwh. TVA's power sales are covered by long-term contracts.

The distinguishing characteristic of the TVA power system, aside from its size, is its rate policy. This policy is set by the TVA Act of 1933 which declares in Section 11 "that the projects herein provided for shall be considered primarily as for the benefit of the people of the section as a whole and particularly the domestic and rural consumers to whom the power can economically be made available, and accordingly that sale to and use by industry shall be a secondary purpose, to be utilized principally to secure a sufficiently high load factor and revenue returns which will permit domestic and rural use at the lowest possible rates and in such manner as to encourage increased domestic and rural use of electricity."

#### Low Power Rates to Prevail

This policy was reaffirmed by Congress in adopting the revenue bond financing amendment. In its direction to TVA to charge rates sufficient to cover costs (heretofore described), the amendment adds: "... having due regard for the primary objectives of the Act, including the objective that power shall be sold at rates as low as are feasible."

The result of the low rate policy, along with active educational and promotional work by the local distributors of TVA power, has been an unusually high use of electricity. For example, since the end of World War II, about \$2.5 billion worth of appliances have been purchased by consumers of TVA power. Today, more than a quarter of a million homes in the area are heated entirely by electricity, nearly half of the total for the United States as a whole. More than 95% of the region's farms now have electric service, compared to only 3% in 1933 and 25% at the end of World War II. Average residential use of electricity in the TVA service area is about twice the average for the nation as a whole—more than 8,000 kwh in the calendar year 1959, as compared with 3,550 kwh as a national average.

High use and a mass market have enabled TVA to employ the economies resulting from mass production and transmission; the local distributors similarly have been enabled to adopt important economies. For example, large loads and a high load factor have permitted the design and installation of steam generating units having large capacity and increased efficiency in terms of coal consumption. Turbogenerators, recently put in use, turn out a kilowatt hour of electricity with between 12 and 13 ounces of coal. Under construction are two units of 500,000 kw capacity each of which are expected to do even better, and a third of 600,000 kw is anticipated to have still further improvements and economies. The Btu's per kilowatt hour of net generation, system-wide, have declined steadily from 12,871 in 1951 to 9,620 in calendar 1959.

Typical of the large modern steam plants of TVA is the Kingston plant, the world's largest, with a generating capacity of 1,400,000 kilowatts. TVA's Shawnee plant, in western Kentucky, is only slightly smaller with a capacity of 1,350,000 kw. The first TVA steam plant to be financed, at least in part by the new revenue bonds, will contain the 600,000 kw generating units mentioned above. This plant, now under construction at Paradise, in western Kentucky, will have two such units initially and four ultimately, which will make it

one million kilowatts larger than Kingston. Situated close to a new mine to be opened by Peabody Coal Company, Paradise will have one of the lowest fuel costs of any steam plant in the country—65 million tons of coal have been contracted for at a cost of \$2.95 a ton.

The Tennessee Valley Authority is a specific example of building for future power needs on the basis of high-volume power produced efficiently at low cost, to be sold at low rates.

Financial and operating statistics of the TVA power system are readily available from published sources. The agency's annual report incorporates its financial statements, including details of power expense for each generating plant and for the system as a whole. The 1959 annual report is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., for the price of \$1.00. The financial statements of the agency are available separately from the TVA Director of Information, New Sprankle Building, Knoxville, Tennessee. General information material on all of TVA's operating programs, power included, is also available from the Director of Information.

### Annual Session on Security Markets Gets Underway in New York June 20

This year's Tenth Annual Session on the Nature and Operation of Financial Security Markets is scheduled to get under way Monday, June 20, in the offices of the New York Chamber of Commerce.

Presented each year, in New York City, by the University of Vermont and the New York Financial Community, the "Economics of Capital Formation" is directed by Dr. Philipp H. Lohman, Converse professor and chairman of the University's Department of Commerce and Economics.

The six-week course (June 20 through July 29) "is designed to give students a better understanding of the social and economic functions of the institutions which constitute the financial industry." Moreover, "it is aimed to instill in students an awareness and understanding of the contributions of the financial community to a dynamic and stable national economy. In so doing it helps to narrow the chasm which exists between the campus and the market place."

As in previous years, the 1960 course will be highlighted with lectures by outstanding men in their respective fields. In addition, the two New York stock exchanges will be visited, as well as Federal Reserve Bank of New York and security houses. A special feature this year will be a two-day discussion of and visits to commodity markets, sponsored by the Educational Committee of the New York Commodity Exchanges.

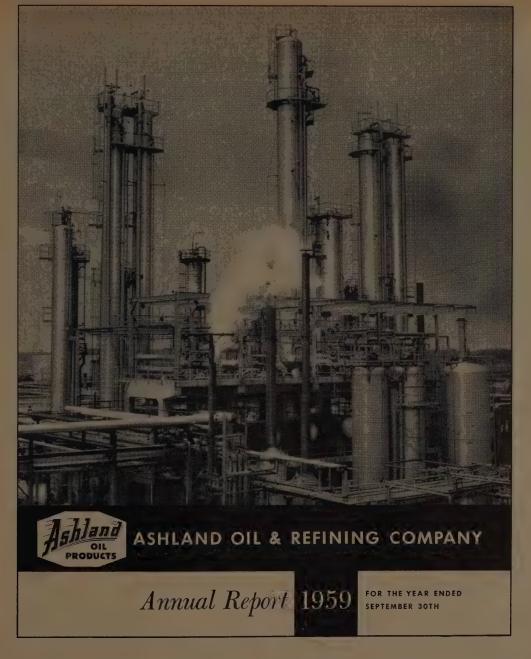
Included among a long list of guest lecturers, and

some of the topics, are: "The Role of the Analyst in the Securities Industry," by Richard R. Fields, Jesup and Lamont; "Writing Market Letters," by Lucien O. Hooper, W. E. Hutton & Co.; "The Outlook for Atomic Energy," by Dr. Paul F. Genachte, Chase Manhattan Bank; "The Outlook for the Auto Industry," by Charles N. Morgan, Jr., Bache & Company; "The Corporate Bond Market," by Jonas H. Ottens, Salomon Bros. & Hutzler.

Also: "Outlook for the Rails," by Pierre R. Bretey, Hayden, Stone & Co.; "Investing for Life Insurance Companies," by William R. Cowie, Equitable Life Assurance Society of the United States; "The Role of the Investment Banker," by Edward Glassmeyer, Blyth & Co., Inc.; "Financing Philosophy and Stockholder Relations," by John J. Scanlon, American Telephone and Telegraph Company; "An Analysis of the Technical Action of the Stock Market," by Edmund W. Tabell, Walston & Co., Inc.; "The Listing of Securities," by Phillip L. West, vice president, New York Stock Exchange; "Floor Procedure," by Arthur A. Bellone, American Stock Exchange; "Practices and Techniques in the Over-the-Counter Market," by Carl Stolle, G. A. Saxton & Co., Inc.; and "Portfolio Management," by Montague H. Zink, Continental Research Corporation. A one-day visit with officials of Standard Oil Company (New Jersey) is also scheduled.

The course gets underway with an address by Dr. Lohman on "The Role of the Financial Industry in the Process of Capital Formation."

<sup>(</sup>Editor's note: Space precludes listing all the topics and speakers. For further information, contact Dr. Philipp H. Lohman, University of Vermont, Burlington, Vt.)



Ashland Oil's Annual Report for the Fiscal Year ended September 30, 1959 tells of an increase of 39% in net earnings to \$14,349,025, of the company's new plants and processes in the Petrochemical field, and of large new crude oil reserves in Venezuela.

If you are interested in knowing more about the progress of Ashland Oil in its 36 years of uninterrupted earnings, a copy of the Annual Report will be sent upon request.

### ASHLAND OIL & REFINING COMPANY

Ashland, Kentucky







STRADDLE CARRIERS



TRACTOR SHOVELS



EARTHMOVING SCRAPERS



**EXCAVATOR CRANES** 





# Condensed Financial Report

DECEMBER 31



POWERED HAND TRUCKS



TRACTOR DOZERS



LOGGING EQUIPMENT



TRUCK BODIES







The Company has mailed to all shareholders as of February 17, 1960, a preliminary report containing the financial statements for the year ended December 31, 1959. The financial report and operating particulars presented here, in condensed form, have been prepared by the Company from the more detailed financial statements certified by the company's public accountants, Price Waterhouse & Co. Copies of the preliminary report to shareholders are available upon request sent to the Secretary at the home office of the company at Buchanan, Michigan.

CLARK EQUIPMENT COMPANY

#### SALES, INCOME AND OTHER PARTICULARS FOR THE CALENDAR YEARS 1959 AND 1958

		1959		1958
NET SALES	. \$2	208,183,997	\$:	142,618,140
Income before federal income tax. Provision for federal income tax		24,001,804 11,600,000	\$	11,948,533 5,500,000
NET INCOME for the year	. \$	12,401,804	\$	6,448,533
CASH DIVIDENDS:  Common stock—\$2.25 per shar in 1959 and \$2.00 per share in 1958.  Preferred stock—redeemed Jun 15, 1959—annual rate of \$5.00 per share.	n .\$ e 0	5,348,692	\$	4,749,453 36,896
TOTAL DIVIDENDS	.\$	5,363,230	\$	4,786,349
EARNINGS—per share of common stock outstanding (after dividend paid to preferred shareholders).	ds	\$5.21	_	\$2.70

#### Balance Sheet—December 31, 1959

#### ASSETS

#### CURRENT ASSETS: Accounts receivable. INVESTMENTS.... 17,017,647 LAND, BUILDINGS AND EQUIPMENT.....\$55,860,386 31,263,253 \$141,365,810

LIABILITIES	
CURRENT LIABILITIES LONG TERM NOTES PAYABLE CAPITAL STOCK AND RETAINED EARNINGS:	\$ 44,074,959 28,650,000
Common stock—par value \$15 per share (2,382,851 shares)\$35,742,765	
Capital in excess of par value of shares	
Earnings retained and used in the business	
Less—Cost of 5,888 shares held in treasury 123,648	68,640,851

# The Theory of 'Games' in Stock Selection

# .... how it might be applied to Security Analysis

by Irving Hale

SEVERAL NEW MATHEMATICAL theories have proved to be useful tools when used to supplement statistics in business and finance. Generally, statistics are employed to construct theories from empirical data, while the new techniques, broadly classified under the heading "operations research," act in the opposite direction, proceeding from the abstract towards the practical.

One of the new concepts is the "theory of games," first introduced to the public in 1944, by John von Neumann and Oskar Morgenstern. This theory finds use in "games" where rational thinking can affect one's gains. It provides an optimum strategy or combination of strategies to be used in playing against an opponent who also may vary his strategy, and who is presumed to be intelligent and quite selfish.

This technique has been applied to such diverse situations as ascertaining ideal inventory levels, or finding the most efficient electrical generators called for by particular circumstances. Edward G. Bennion, consulting economist for the general economics department of Standard Oil Company (New Jersey), has shown that the theory of games can be used to determine the most practicable size of oil refinery based upon the effect that any one of several future economic conditions might have upon refinery yields. Mr. Bennion modified the theory for use in his article, and what follows is an attempt to adapt Mr. Bennion's technique to Security Analysis.

#### A 2 x 2 Matrix

Some admittedly simple-minded examples will show how game theory might might be applied to Security Analysis. Assume that an Analyst cannot decide between two stocks. Each is a "war baby." One manufactures manned bombers in the 750 to 1,500 miles per hour range; the other is engaged in research on rocket engines propelled by liquid hydrogen. The Analyst decides, with respect to all current conditions considered in stock appraisal, that the companies are equally attractive in every regard and that, in the future, they will be identically affected by every economic factor except

1. Footnotes appear at end of article.

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one—defense spending. The Analyst then makes the following assumptions:

- 1) Defense spending in the next X years will either be greatly increased or greatly decreased. There will be no other alternatives.
- 2) If defense spending were decreased, the Defense Department would emphasize manned bombers as a deterrent to aggression. The first company, Airframe, Inc., would enjoy prosperous times; the return of its common stock (taken here to mean yearly dividends plus annual price appreciation of the common stock) would average 9% over each of the next X years.
- 3) Under such a decrease the other firm, Hydrorocket Corp., would lose several contracts and its average return would be but 3% for the same period of time.
- 4) If defense spending were increased, manned bombers would be largely abandoned and Airframe would bring in only 2% yearly.
- 5) Under this same condition, research in the use of hydrogen fuel would be encouraged. Hydrorocket would experience boom times and the stock would return 12%.<sup>2</sup>

The hypotheses may be placed in a type of array known as a matrix, more specifically a 2 x 2 matrix, since one player (the Analyst) has a choice of two strategies, as does his "opponent" (the government):

Investment Alternatives	Defense Spending	Alternatives
	Decrease	Increase
Airframe, Inc.	9%	2%
Hydrorocket Corp.	3%	12%

Before attacking the matrix, it might be well to review some of the mathematics of probability. Assume that one event is definitely going to happen, but in either of two different ways. It follows that if one of the alternatives does not occur, the other will. By convention, the value 1.000 signifies that the chance of an alternative happening is absolute—it definitely will occur, and 0.000 signifies that the possibility is nil. The chance of a coin coming up heads in one toss is .500; the same is true for tails. The sum of all possibilities, even if there were more than two, is always 1.000, since one of the alternatives occurs each time.

Imagine a game of coin-flipping where the reward for heads is two and for tails one. The return from a great number of flips would average 1.5, or  $(.500 \times 2) + (.500 \times 1)$  where the .500 coefficients represent the respective chances of a head and a tail turning up.

This average payoff is considered the expectation even if only one toss were to be made and can be described as the probability return.

By analogy, Hydrorocket and Airframe each has its probability return, based upon the chance of defense spending being decreased and increased. There exists a set of chances under which the probability return from Hydrorocket equals that of Airframe. At this point of indifference, either stock is equally attractive. That point is determined as follows:

Let I = the chance of an increase in defense spending Let D = the chance of a decrease in defense spending

From the matrix, the probability return of Airframe is 9D + 2I, and that of Hydrorocket, 3D + 12I. When the returns are equal:

$$9D + 2I = 3D + 12I$$
  
 $10I = 6D$ 

As with the coin game example, there are only two alternatives and their respective chances total one, so:

$$10I = 6 (1 - I)$$

$$10I = 6 - 6I$$

$$16I = 6$$

$$I = .375, \quad D = .625$$

If the chance of an increase in defense spending were 375 in 1,000—more simply, three in eight—and that of a decrease five in eight, then either company would appear equally attractive.

The Analyst next asks his economics department for their estimate of the chance of an increase and a decrease in defense spending. He is told that it looks 50-50 either way. Gathering the data:

Investment Alternatives	Defense Spending	Alternatives Increase
Airframe, Inc.	9%	2%
Hydrorocket Corp.	3% .	12%
Indifference Probabilities	.625	.375
Forecasted Probabilities	.500	.500

The forecasted probability of an increase occurring is greater than the indifference probability. The Analyst, therefore, surveys the returns available under an increase. Hydrorocket's return of 12% is the higher of the two, so Hydrorocket is the stock to buy.

There is an alternative way of expressing this decision which should be kept in mind, for it will be used later in a more advanced application. Recall the indifference equation 10I = 6D. Substituting in this equation the forecasted probabilities for I and D results in an inequality, since 10(.5) is greater than 6(.5). Again, an increase in spending is the basis for stock selection.

#### Amount of Leeway in Decision

The theory of games as applied here has not only told the Analyst which stock to buy but also how much leeway there is in his decision. If he had wanted to, the Analyst could have simply calculated the probability return of each stock, using the forecasted data. He would have come up with  $3(.500) + 12(.500) = 7\frac{1}{2}\%$  for Hydrorocket,  $9(.500) + 2(.500) = 5\frac{1}{2}\%$  for Airframe and chosen the former on the basis of its higher expected return. Employing probability returns as the sole basis for stock selection, however, would not have told the Analyst the degree to which the forecast could be changed before his selection would be in error, and it is here that the theory of games transcends that of probability.

In the above example, if the forecasted chance of military spending increasing were any value greater than three in eight, then Hydrorocket would be his bet; if not, then Airframe should be bought.

#### The 3 x 3 Matrix<sup>8</sup>

To the two economic possibilities under consideration, the Analyst now adds a third; that defense spending will not change. He also considers a third security; a food processing company called Non-Cuban Sugar. He assumes that the stock of this unglamorous firm will return 6% under all conditions and further decides upon return of 5% for Hydrorocket and 4% for Airframe, if there were no change in defense spending. The Analyst then asks his economics people for their estimate of the chance of each of the three conditions occurring and they reply that the chance of each occurring is equal. After ruminating on the possible indecisiveness of his economics department, the Analyst sets up his data:

Investment Alternatives	Defense Spending Alternatives				
ŕ	Decrease	No Change	Increase		
Airframe	9%	4%	2%		
Non-Cuban Sugar	6%	6%	6%		
Hydrorocket	3%	5%	12%		
Forecasted Probabilities	.333	.333	.333		

The indifference probabilities are calculated in exactly the same manner as used in the 2 x 2 matrix and turn out to be:

$$D=.515$$
  $N=.195$   $I=.290$  (N = the chance of no change in defense spending)

If only one forecasted probability had turned out to be greater than its corresponding indifference probability, solution would be easy, for, as in the 2 x 2 matrix, the returns in that column would be surveyed and the appropriate stock selected. Here, two forecasted probabilities are greater, so other methods are required.

Note that Airframe's return is the highest of the three in the decrease column, and the lowest of the group in the other two columns. Airframe would merit consideration only if the forecasted probability of a decrease were greater than the corresponding indifference value. Such is not the case, so Airframe may be eliminated.

As seen above, there was one indifference point when all three stocks were considered. There is an infinite number of points for the two remaining stocks, however, when they are considered by themselves. Setting equal the probability returns for Hydrorocket and Non-Cuban:

$$\begin{array}{c} 3D + 5N + 12I = 6D + 6N + 6I \\ 3D = N + 6I \\ D = 2I - N/3 \end{array}$$

Even making use of the fact that D + N + I = 1results in two equations involving three unknowns, a problem having an infinite number of solutions in algebra. There is a way around the problem, however. Recall the alternative justification for the solution of the 2 x 2 matrix — the fact that 10(.5) was greater than 6(.5), where the first .5 represented the forecasted probability of an increase and the second, the corresponding chance of a decrease. The same approach is applied here by finding whether the chance of decrease in military spending is greater or less than twice the chance of an increase less one-third the possibility of no change. If the likelihood of a decrease were greater, then Non-Cuban would be the best investment, for it returns more under that condition. The forecasted probability of a decline, however, is .333, which is less than 2(.333) - 1/3(.333). Hydrorocket again is the stock to buy.4

As a check on the choice made, the probability returns of the two stocks may be computed using forecasted data. They equal 3(.333) + 5(.333) + 12(.333) or 6.667% for Hydrorocket and 6(.333) + 6(.333) + 6(.333), equalling 6.000% for Non-Cuban (which returns 6% under any condition). The margin of safety here is .667%.

In a 3 x 3 matrix, it is much more difficult to resolve the question of how much leeway there is in a decision. As mentioned earlier, there are infinitely many cases where it does not matter whether Hydrorocket or Non-Cuban Sugar is purchased. To find the minimum amount of leeway would call for mathematical techniques beyond the scope of this article. Some trial and error can provide an indication, however.

Notice that the highest multiplier in either equation is the "12" preceding "I" in the expression for Hydrorocket's probability return. Of all changes, an alteration in the forecasted probability of an increase will produce the greatest change in Hydrorocket's return. One slight change would be to alter the forecast to D=.35, N=.35 and I=.30, which results in a new probability return of 6.40% for Hydro versus 6.00% (as always) for Non-Cuban. The margin of safety shrinks from .667% to .400%.

A further alteration might be to estimate D=.40, N=.35 and I=.25, resulting in a return of 5.95% for Hydrorocket versus 6.00% for Non-Cuban. The virtual identity of yields indicates that this last forecast lies quite near an indifference point. Even if this point does not represent the indifference value closest to the original forecast, it is seen that there is not too much of a cushion present in choosing Hydrorocket. Furthermore, Airframe, rejected earlier, begins to loom large again. Under the original forecasted probabilities, its return was 5%; using the last estimate, the return would

climb to 5½%, and any further raise in the forecast of a decrease would merit Airframe additional consideration.

Another experiment may be performed on this particular 3 x 3 matrix. Suppose that the economics department has overheard the Analyst's muttering about its "wishywashiness" and decides to revise its estimates. It now claims that an increase in spending has been completely ruled out as a possibility, and that the chances of a decrease are now thought to be two in five and that of no change, three in five. The Analyst begins anew with a matrix that looks as follows:

Investment Alternatives	Defense Spending Decrease	Alternatives No Change
Hydrorocket	3%	5%
Non-Cuban Sugar	6%	6%
Airframe	9%	4%
Forecasted Probabilities	.400	.600

Hydrorocket may be eliminated as a possibility, since Non-Cuban yields more under both conditions. The matrix then simplifies to:

Investment Alternatives	Defense Spending Decrease	Alternatives No Change
Non-Cuban Sugar	6%	6%
Airframe	9%	4%
Forecasted Probabilities	.400	.600

Solving for indifference probabilities is accomplished in exactly the same manner as that used in the earlier 2 x 2 matrix and results in indifference probabilities exactly equal to the forecasted values above. Either stock is equally attractive for purchase under these conditions.

#### Problems

Like most studies that attempt to break a path, this one raises more questions than it solves. Some of them are:

- 1. Capital Gains vs. Income. It is obviously unsatisfactory to lump capital gains and dividends together under "return." A dividend is usually valued much higher in the stock market than the equivalent amount of capital gains. More sophisticated matrix values would allow for these differences in preference.
- 2. Safety. If a matrix were set up on the basis of return between government bonds and practically any stock, the stock would almost always appear to be the choice, since stocks bring in more combined income and capital gains than government bonds under most economic conditions. Clearly, the factor of safety must also be considered; the values present in matrices should not only represent a balance between dividends and capital gains but reflect the degree of safety present in this refined concept of return.
- 3. Choice. It seems likely that techniques can be devised so that choice of securities could be made under more than just two or three conditions. The invention of the calculus made it possible to determine the maximum point on a curve made up of an infinite number of

points. Perhaps, just as the solution of matrices, involving a finite number of points, is made using algebraic devices, a way may be found to employ the calculus to solve for an optimum investment program based upon any degree of change in military spending.

4. Mixed Strategy. It was mentioned at the beginning of the article that the theory of games sometimes calls for mixed strategies against an opponent who also might vary his tactics. Though Nature is not a wilfully greedy or rational opponent, her "strategies" are not only infinite in variety but are constantly changing. If the "theory of games" could cope with such a state of flux, it would become a most effective tool indeed.

#### Footnotes

1. "Capital Budgeting and Game Theory", Harvard Business Review, November-December, 1956.

2. It is realized that these assumptions violate practically every rule of Security Analysis since they are oversimplified and even erroneous. They are intended as an illustration of how a matrix might be constructed.

3. The author is grateful to Mr. Bennion for several most helpful suggestions made in regard to this section.

4. A residual doubt as to Hydrorocket's suitability might remain with the Analyst, due to Non-Cuban yielding more under the alternative of no change. The doubt should be dispelled, for Non-Cuban would return so much less if spending were increased, that it should remain under consideration only if the possibility of no change were much greater than that of an increase, a likelihood contrary to assumption.

#### Wanted: A Balanced Mixture . . .

(Continued from Page 3)

that this standard was developed as a result of the period between 1900 and 1913 when the price earnings ratio for the more popular stocks fluctuated in a narrow area around this figure? Possibly there was a brief period when such a standard was usable and practical; but how long after it was outdated was it quoted as gospel?

Note the fundamentalist approach—all selections are made on the basis of "value" as suggested by relationships between prices and earnings, book values, present values of dividend flows, etc. Many fundamentalists received their training and ideas in the middle and late '30's, a period of turmoil and hangover from the '29 spree. Does their method reflect the desire to overcome

the irrationality of that age?

More recently, does the price-times-cash-flow technique represent an effort to overcome the psychological hazard of price earnings ratios that seem so "grossly out of line," or—witness the recently publicized growth theories of analysis—possibly created to deal with price earnings ratios that no one could have "lived" with as recently as four years ago. Is the increasing emphasis on the "technical" aspect of the securities markets, in the past two years, another effort to deal with a different situation? Five years from now, will different conditions make the technical approach obsolete?

Whom are we debunking? The answer is no one. We only urge that every Analyst keep his approach as unrestricted as possible. We appeal for breadth of

scope and creative thinking. In the past too much time and energy has been spent in developing a single system; much money has been lost because of a vested psychological interest in a "method." Let not an exclusively fundamental or a technical approach be the rule.

The competent Analyst is just that in every sense of the word—not a mere culler of figures, but a banker, quasi-scientist, marketing expert, interpreter of public opinion and psychologist.

The Analyst is an interpreter of the financial scene

in its broadest sense.

The Analyst's duty is to make money for his client, and to this end he must bend his efforts in every direction, using old and new techniques and developing still newer ones. There is no room for standardized thinking and pigeonholed ideas in these rapidly changing times. Every investor has the right to demand of his Analyst the highest technical competence, the broadest use of all techniques.

#### A 'Real Growth Situation'

With authors from five of the Analysts Societies (Denver, Detroit, Los Angeles, New York and St. Louis) in this issue of *The Journal*, we hope that a precedent has been set—insofar as the number of representative Societies is concerned — and that we may look back on future issues as we muse about (thanks to Somerset Maugham) "The Mixture as Before."

In all seriousness, we are indeed most happy to note the number of Analyst-authors in our current issue, and obviously we presume this is not a coincidence, but rather that a greater personal interest is being taken by the members. For while we'll continue to seek interesting, challenging, and provocative articles from outside our membership, it's the author-members (or should be) who comprise the hard core of *The Journal's* editorial contents.

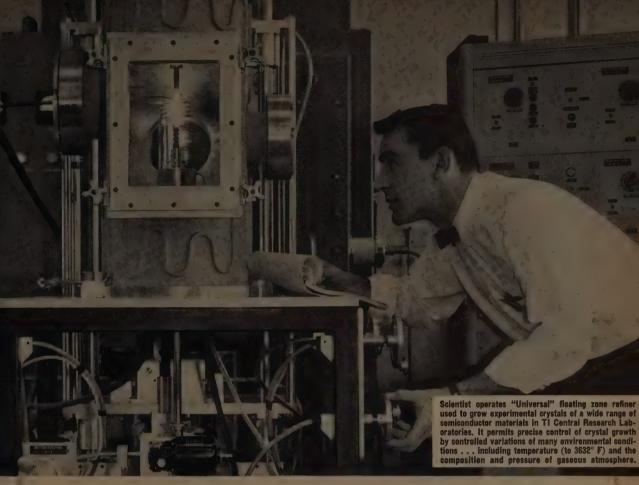
We've also been happy to note that our correspondents in various Analysts Societies are writing in with editorial suggestions and ever-helpful tips about financial activities in 'their cities. It's this diffusion of interests—geographical and financial—that makes your publication "must reading."

#### What d'Ya Read?

Well we know of three gentlemen, two in the United States and the other in The Netherlands, who are nosedeep in back issues of *The Analysts Journal*—now, of course, *The Financial Analysts Journal*. All requested copies of every issue since Vol. I, No. I.

That constitutes a powerful lot of heavy reading. And of course we were most happy to provide the printed pages, though we did discover that our back copies were incomplete. This gave us an idea: Could it be that the editorial content of those few missing issues was so interesting that each became "a sell-out"?

At any rate, on some rainy day we're going to investigate. And it's entirely possible that we might strive to duplicate some of the articles wherever feasible.



# putting the heat on space age problems!

This is the kind of research that will enable future semiconductor products — transistors and other tiny devices whose uses already range from pocket radios to huge computers and rocketing space vehicles — to perform even more difficult tasks (in deep space explorations and in industrial, commercial and military electronic systems). Advanced concepts and techniques, gained by the world's largest semiconductor manufacturer, keep Texas Instruments at the forefront of such technologies.

This particular program is in progress at TI's Central Research Laboratories. Its purpose is to explore materials that promise a wider operating temperature range and superior performance for solid state devices. Such laboratory projects may well lead to products that surpass the silicon transistor and the Semiconduc-

tor Solid Circuit — two significant TI "firsts" in semiconductor research, development and manufacture.

This is one of many TI-sponsored investigations being conducted by the Central Research Laboratories to gain more precise information in the areas of Solid State Physics, Materials, Devices, and Data Systems and Earth Sciences. Such studies, geared mostly to long-range product goals, result in a flow of scientific knowledge to Texas Instruments operating divisions which combine it with their own innovative R, D & E programs to produce better products and services for your convenience and safety in this Electronic Age.

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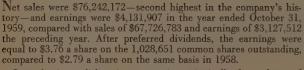


# Highlights for 1959

Earnings increased 32%-Sales increased 121/2%



Copies of our Annual Report for the fiscal year ended October 31, 1959, are available upon request. Write to Secretary, The Celotex Corporation, 120 South LaSalle Street, Chicago 3, Illinois.



Some business dislocation, stemming principally from the steel strike, was felt in the fall of 1959 and has continued in early fiscal 1960. Tightening in the mortgage money market indicates a drop in new home construction. On the other hand, a high rate of non-residential building construction and continued expansion of the repair, remodeling and "do-it-yourself" markets are expected.

We presently anticipate no relaxation of competitive conditions and recognize the necessity of continuing to intensify our efforts to increase our share of the market. The Celotex line of products is continually being improved and enlarged. We are optimistic for the future and expect to maintain the strong position we have long held in the building industry.

### COMPARATIVE STATEMENT OF INCOME

FOR TH	IE YEARS ENDE	O OCTOBER 31,
	1959	1958
NET SALES	\$76,242,172	\$67,726,783
Costs and Expenses:	-	
Cost of sales and selling and		
administrative expenses	65,286,360	58,832,728
Depreciation and depletion	2,845,417	2,662,365
TOTAL COSTS AND EXPENSES	68,131,777	61,495,093
INCOME FROM OPERATIONS	8,110,395	6,231,690
OTHER INCOME (net)	73,512	(114,178)
Income Before Income Taxes	8,183,907	6,117,512
Provision for Income Taxes	4,052,000	2,990,000
NET INCOME FOR THE YEAR	\$ 4,131,907	\$ 3,127,512

ASSETS	
AS OI	COTOBER 31
	1959
CURRENT ASSETS:	
Cash and U. S. Government securities	\$ 8,729,052
Accounts receivable (net)	11,046,840
Inventories	7,965,369
TOTAL CURRENT ASSETS	27,741,261
PROPERTY, PLANT AND EQUIPMENT	79,119,421
Less: Accumulated depreciation and depletion	28,059,557
NET PROPERTY, PLANT AND EQUIPMENT	51,059,864
Investments	1,236,643
PREPAID EXPENSES AND DEFERRED CHARGES	643,264
Total Assets	\$80,681,032

#### LIABILITIES, CAPITAL STOCK AND SURPLUS

CURRENT LIABILITIES:	
Accounts payable	\$ 4,138,432
Accrued expenses	1,703,760
Taxes (less U. S. Treasury obligations)	811,735
Payments on long-term debt due within one year	950,000
TOTAL CURRENT LIABILITIES	7,603,927
LONG-TERM DEBT DUE AFTER ONE YEAR	20,450,000
Deferred Federal Income Taxes	1,598,000
NET WORTH:	
Preferred stock	5,137,250
Common stock	1,028,651
Paid-in surplus	10,581,140
Earned surplus	34,282,064
TOTAL NET WORTH	51,029,105
TOTAL LIABILITIES AND NET WORTH	\$80,681,032

# Are California Utilities Growth Companies?

by Louis J. Zitnik

ARE CALIFORNIA UTILITIES GROWTH COMPANIES?

At first glance, the question seems superfluous in view of the dynamic expansion in the Golden State; but a review of the results of the leading electric and gas utilities reveals some interesting divergent trends over the past decade.

A utility is, of course, only as potentially strong as the economy of the area which it serves. The California companies have benefited from a reord expansion of both population and industry. In the period since the 1950 Census the population of California has increased at a rate fully  $2\frac{1}{2}$  times that for the United States as a whole. The state had a population of 15,100,000 on July 1, 1959, a gain of 42.6% over the 1950 Census. It has, in fact, accounted for almost 18% of the total population increase in the nation during this period. This trend is expected to continue with experts estimating 1980 population at 27,500,000.

Pacific Lighting, which serves most of southern California with natural gas, has added approximately 90,-000 meters per year since the close of World War II, and it expects to add about that number each year in the foreseeable future. Putting it another way, the system must each year stand prepared to begin to serve a city with a population approximately equal to California's Pasadena, Glendale, and Burbank combined (or larger than the city of Rochester, New York).

Until World War II, agriculture dominated the California economy. The state continues to lead the nation in value of agricultural commodities, but substantial diversification has since been achieved, with manufacturing activities increasing sharply. Manufacturing employment has increased 87% in the past 10 years, to an average of 1,296,000 in 1959.

The electronics industry is the second largest manufacturing industry and the fastest growing in California. Employment in the electrical machinery, equipment and supplies industry, which consists largely of electronic items, in southern California (111,100 in August, 1959), was nearly seven times what it was 10 years ago. Employment gains in the missile field are, of course, more startling.

As the population of the area has expanded, most national manufacturers have established plants in the area to supply regional needs rather than transport products from eastern plants, whether the product was

Louis J. Zitnik, a research partner of Mitchum, Jones & Templeton, was previously an economic and Financial Analyst for Kerr & Co. Mr. Zitnik holds a master's degree from the University of California, and has lectured on investments at the University of Southern California. Currently the author is a member of the board of directors, The Los Angeles Society of Security Analysts.

soap, beer or electrical equipment. Kaiser Steel virtually doubled its steel mill capacity to 2,933,000 tons in late 1958 to provide for the growth in the metal working industry. In the soft goods category, California has taken first place in sportswear and second position nationally in the over-all garment industry.

#### Construction Industry Booms

As would be expected, the construction industry has reported record gains during recent years. In 1958, building permit applications totaled \$3.5 billion, more than twice the total for New York, its closest competitor. In Los Angeles County alone more houses were started than in any other state.

California has three of the nation's largest utilities—Pacific Gas & Electric, a dual electric and gas utility which serves most of central and northern California; Pacific Lighting, a distributor of natural gas in southern California; and Southern California Edison provides electricity for most of southern California (excepting the city of Los Angeles, which is served by a municipal system). In fact, PG&E serves more electric customers than any other utility while Pacific Lighting holds the comparable distinction in the gas field.

San Diego Gas & Electric is a dual utility serving San Diego and the far southern part of the Golden State, while California Electric Power derives most of its revenues from electric service in southeastern California; but it also obtains a minor portion of its revenues from service in southwestern Nevada and Mexico. California Oregon Power serves far northern California, but also derives substantial revenues from southern Oregon. Sierra Pacific Power serves a portion of eastern central California, but its adjacent Nevada operations are of greater importance. Hence, California Oregon Power and Sierra Power are not principally California utilities.

The population growth and increases in the number of customers served with electric service by California utilities are shown in *Table I*, while the comparable gas statistics are detailed in *Table II*. As would be expected, the largest percentage gains were shown by the smaller systems.

Industry electric energy deliveries to customers increased by approximately 145% in 1959 over 1949. The gains in kwh sales, for the same period for California utilities, varied from 103% for PG&E, to 195% for California Electric Power. Again, the smaller systems in southern California showed the largest percentage increases.

Industry gas deliveries to customers advanced approximately 150% in 1959 over 1949. The gains for California gas utilities during the same period were

Table I\*

Electric Energy Statistics

	California Elec. Pwr.	Pacific Gas & Elec.	San Diego Gas & Elec.	Southern Calif. Edison
Energy Sales (million kwh)				
1959	1,669	21,313	2,312	15,700
1949	565	10,475	. 861	6,525
% Increase	195	103	169	141
Generating Capacity (thou. kw)				
1959	427	5,219	667	3,834
1949	108	2,203	222	1,743
% Increase	297	137	200	120
No. of Elec. Customers (thou.)				
1959	109	1,896	312	1,569
1949	54	1,268	171	891
% Increase	102	50	82	76
Population Elec. Area (thou.)				
1959	295	5,710	1,059	4,840
1949	134	4,150	556	2,578
% Increase	121	38	89	88

\*1959 Statistics in all tables (excepting market price of common stock which is on calendar year basis) for California Electric Power for 12 months ended 11/30/59, Pacific Gas & Electric 12 months ended 9/30/59, Pacific Lighting 11 months ended 11/30/59, San Diego Gas & Electric 12 months ended 10/30/59 and Southern California Edison calendar year 1959 estimated.

111% for Pacific Lighting, 121% for San Diego Gas & Electric, and 125% for PG&E. The gas utilities in California have been able to achieve an exceptionally high per capita gas consumption. Pacific Lighting reported that 99.5% of its residential customers used gas or space heating in 1958, 98% for water heating and 88% for cooking. However, its percentage gains in deliveries lagged behind the national average because of the fact that gas utility customers in other regions, particularly the East, had a very low saturation in use of gas 10 years ago and were able to increase their per capita saturation by a greater degree.

#### Electrical Output on the Rise

To take care of the increases in demand, all California electric utilities more than doubled their electric generating capacity, while California Electric Power almost quadrupled its generating capability. Such expansion placed unprecedented financial requirements upon the respective companies. For example, California Electric Power's net investment in property more than tripled from \$41,592,000 at year end 1959, to \$137,230,000 on November 30, 1959.

The gas companies were faced with the problem of adequate supplies during this period. Prior to 1947, all gas supplies were obtained in California, but now the great portion of expanded requirements are purchased from El Paso Natural Gas at the California border, with a second pipeline from the Southwest (Transwestern) scheduled to commence deliveries this August, and a third planned from Canada to California.

Gross revenues and net income of the California utilities for 1949, and latest available 12 months' figures for 1959, are shown in *Table III*, together with

Table II

Gas Statistics

		Pacific Lighting	San Diego Gas & Elec.
Gas Sales (thou. MCF)			
1959	445,261	489,000	19,984
1949	198,076	232,000	9,035
% Increase	125	111	121
Peak Day Sendout (thou. M	(CF)		
1959	1,904	2,187	132
1949	873	1,067	56
% Increase	118	105	136
No. of Customers (thou.)			
1959	1,593	2,393	252
1949		1,446	131
% Increase	. 64	65	92
Population Gas Area (thou	1.)		
1959	6,250	8,200	950
1949	4,300	5,350	446
% Increase	45	53	113

percentage increases. The investor is, of course, primarily interested in per share earnings, dividends and price appreciation for the common stock.

Earnings on the Dow-Jones utility average for the 12 months ended September 30, 1959, were 66% ahead of 1949, while dividends were up 83%, and market price advanced 144%. Individual per share earnings results of the California utilities varied from a gain of 27% for California Electric Power, and Southern California Edison, 63% for San Diego Gas & Electric, and 79% for PG&E to 89% for Pacific Lighting.

It will be noted that per share dividend gains ranged

Table III
Financial Comparison

	California Elec. Pwr.	Pacific Gas & Elec.	Pacific Lighting	San Diego Gas & Elec.	Southern Calif. Edison
Gross Revenues-(thou. \$)					
1959	30,480	570,654	305,000	69,405	280,200
1949	8,906	217,225	103,000	23,387	100,107
% Increase	242	163	196	197	180
Net Income (thou. \$)					
1959	5,652	85,618	24,000E	8,727	43,450
1949	1,921		6,824		18,368
% Increase	194	210	251	223	225
Per Common Share					
Earned					
1959	1.17	3.75	2.70E	1.84	3.80
1949	0.92	2.10	1.43	1.13	2.99
% Increase	27	79	89	63	27
Dividend					
1959	0.80	2.60	2.40	1.06	2.60
1949	0.60	2.00	1.50	0.80	1.75
% Increase	33	30	60	33	49
Average Market Price					
1959	20.88	62.50	51.06	26.99	59.19
1949	7.63	32.19	25.69	. 13.19	32.44
% Increase	174	94	99	105	. 82
E — Estimated					

from 30% for Pacific Gas & Electric to 60% for Pacific Lighting, while the increase in average market price of the common stock ranged from 82% for Southern California Edison, to 174% for California Electric Power.

In view of the growth in deliveries and revenues noted for the California utilities, why were the per share results for these systems not more impressive? The answer is not a simple one and involves a number of factors, including higher costs and delays in obtaining rate increases, increasing the percent of equity capital by some systems, weather and competitive factors. Furthermore, the base period 1949 was an unusually good year for California Electric Power, and Southern California Edison.

#### New Procedure May Speed Decisions

Utility rates in California are subject to the jurisdiction of the California Public Utilities Commission, with properties evaluated on a net original cost basis for rate-making purposes. Although utility executives were somewhat reluctant to criticize the commission for the time taken to act upon a rate application, the process is a relatively lengthy one.

Southern California Edison's 1956 rate application took over one year for the commission to process. (There is no provision to put rate increases in effect under bonds.) Investors, however, were encouraged by the decision on Edison's application, effective November 9, 1957, which was designed to work down to and allow a 6.25% rate of return. Such realistic thinking

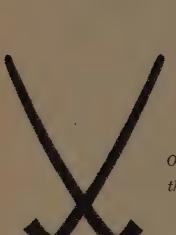
upon the part of the California Commission should enable the California utilities to translate a greater portion of future growth into earnings per share. It is also significant to note that changes in procedure may speed future decisions.

Three of the five California utilities increased their junior equity as a percent of total capitalization at the end of the 10-year period. California Electric Power, for example, had 34.0% of its total capitalization in common stock and surplus on November 30, 1959, compared with only 23.4% on December 31, 1949, while PG&E had a similar type of improvement. Hence, the build-up of junior equity should prove beneficial when future financing is undertaken.

California utilities were adversely affected by the weather in 1959. The period had the least rainfall in recent California history. Both PG&E and Southern California Edison have large hydro operations, while California Electric Power also has modest hydro capacity, Pacific Lighting reported that 1959 was the warmest its system had experienced since it began accumulating weather data in 1928; hence, space heating sales were sharply below average. By contrast, the month of January, 1960, was one of the coldest on record.

Over the next decade, population gains and increased industrialization will provide record business for the California utilities. In view of the various factors enumerated herein, there is ample evidence to indicate that percentage per share increases in earnings and dividends of the utilities should exceed those of the past 10-year period.

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# THE MEASUREMENT OF RISK

# A Problem in Public Utility Regulation\*

by Ferry B. Allen

THE SUBJECT OF THIS ARTICLE would appear to be of concern primarily to public utility companies and their owners, to public authorities responsible for their regulation, and to Financial Analysts specializing in such companies. But it is hoped that the basic problem—the measurement of risk—will be of more general interest.

Analysts, in their daily operations, are continually appraising (sub-consciously, perhaps) the relative risk involved in two or more alternative investments, and making decisions and recommendations based on such appraisals. Yet nowhere in the literature on Security Analysis does there appear to be any workable definition of basic business risk, or suggestions as to methods by which it can be quantitatively measured. It is hoped that this discussion of a problem, in which such a measurement is an essential element, will stimulate further consideration of the whole matter of risk, and thus lead to more effective working tools for the use of Financial Analysts in general.

In the preceding paragraph, as well as in the remainder of this article, the terms "risk" or "business risk" are used interchangeably to refer to those risks which are inherent in an enterprise or industry arising out of the nature of the business, its position in the general economy, its inherent operating characteristics, etc. Thus, the business of drilling for oil has a greater business risk than the business of producing refined petroleum products. This concept of risk is to be clearly distinguished from what may be termed "financial risk"—the relative amount of risk pertaining to various classes of securities, reflecting the allocation of the total business risk of the enterprise between the several classes arising out of their order of preference in the company's capital structure.

Thus, from the investor's viewpoint, funded debt of a company has less financial risk than its common stock, because of its preferred claim on earnings and assets. In particular, "cost of capital"—a phrase originating in the public utility regulatory field but now extended in the area of its application to the general problem of corporate finance and business investment—presumably varies with the amount of business risk inherent in an enterprise, but is unaffected by possible variations in capital structure within the enterprise and the resulting differences in financial risk.<sup>1</sup>

Risk and a 'Fair Rate of Return'

The central problem in the regulation of public utilities is the determination of a "fair rate of return." Legal guide-posts to such a determination have been established by opinions of the U. S. Supreme Court over an extended period of years, and it may be observed that these legal standards represent the application of sound economic principles. Essentially there are two tests which a fair rate of return must meet, and it is important to note that the wording of the Court's opinions clearly implies that both tests must be met, a requirement that unfortunately has been ignored in the postwar years, for reasons which will be mentioned later.

The first test is the "cost of capital" standard—a rate of return which will preserve the financial integrity of the enterprise, maintain its credit, and enable it to attract capital on sound terms. Clearly, unless this standard is met, the utility will be unable to fulfill its public service responsibility in an expanding economy; just as clearly, it represents a minimum or "bare bones" level of earnings. This cost of capital test was well defined in the concurring opinion of Justices Holmes and Brandeis in the Southwestern Bell Case (1923) in these terms:

"It is therefore feasible now to adopt, as a measure of a rate, the annual cost or charge of the capital. . . . Capital charges cover the allowance, by way of interest, for the use of the capital, whatever the nature of the security issued therefor; the allowance for risk incurred, and enough more to attract capital."

Implicit in this opinion is the idea that cost of capital is the sum of pure interest, which would be uniform throughout the economy at any given time, plus an allowance for business risk; and that business risk, and hence cost of capital, will vary between companies and industries. But while from both an economic and legal viewpoint, business risk is a factor to be considered in determining cost of capital, the question of measurement and proof of relative risk, or the specific amount to be allowed for risk over and above pure interest, has rarely, if ever, been raised in utility rate proceedings in connection with expert testimony on cost of capital. Such testimony in general has been based upon market

<sup>1.</sup> Footnotes appear at end of article.

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<sup>&</sup>quot;The author acknowledges with thanks the substantial contributions of others in the development of the thesis of this article, but accepts sole responsibility for the publication of the opinions and conclusions stated. It must not be inferred that this article represents the views of the company with which the author is associated.

appraisal of the securities of the utility being regulated, or of other utilities deemed similar; and it appears to have been tacitly assumed by all concerned (and correctly so, it is believed) that the market appraisal reflects, among other factors, investor evaluation of the business risk inherent in the utility, and hence that such inherent business risk need not be separately identified and measured.

The second test is the "comparative earnings" standard—a rate of return commensurate with that being earned by other, non-regulated, business enterprises. Clearly, only a rate of return which meets this test will provide the utility investor with opportunities and rewards corresponding to those available to him in alternative investments; just as clearly, during periods of economic expansion and the accompanying high level of business activity, this standard represents a rate of return in excess of the bare bones "cost of capital." Superficially, such an end result may appear to be in conflict with the requirement in the opinion in the Hope Natural Gas Case (1944) for a "balancing" of consumer and investor interests, and this is probably one reason why regulatory authorities have consistently ignored the comparative earnings standard in post-war years. On this point, it is sufficient to say that the Hope case, notwithstanding the "balancing" requirement, specifically prescribed the comparative earnings standard as a test of a fair rate of return which must be This standard was first defined in the Bluefield Water Works Case (1923) in the following terms; substantially identical wording appears in the Hope opinion:

"A public utility is entitled . . . to a return . . . equal to that generally being made . . . on investments in other business undertakings which are attended by corresponding risks and uncertainties."

Unfortunately the Court did not define what it meant by risk, or indicate how relative risk could be measured and how enterprises having *corresponding* risks could be selected for comparative purposes.

#### Business Risk vs. Earnings

It is apparent from the wording of these opinions that the Court assumed that, just as cost of capital varies with risk, the return actually realized by such other enterprises also varies with the relative business risk involved—the higher the risk, the higher the earnings, and vice versa, notwithstanding that there does not appear to be any logical economic relationship between the amount of business risk in an enterprise and the level of earnings actually produced by its operations.

This assumption on the part of the Court, coupled with the lack of a standard for measuring relative risk, has inhibited the use of the "comparative earnings" test, with the result that in the post-war period, regulatory commissions have relied almost exclusively on the barebones "cost of capital" measurement in setting rate of return. Efforts of utilities to have comparative earnings

considered have been almost universally unsuccessful, notwithstanding the Court's mandate that they should be given due weight. In disregarding such comparative earnings testimony as has been offered, even when it has included qualitative discussion of relative risk, commissions have in general rationalized their action by such statements as: "There is no proof that the risks are similar or identical." "The utility is not subject to the risk of competition, and therefore is not entitled to a return as high as that being earned by companies subject to this risk." (In passing, it may be noted that the latter statement seems most illogical. It assumes that the earnings of non-regulated business are high because of competition, and that the high earnings compensate for this risk; whereas the fact would seem to be that competition limits earnings, and that the earnings of successful well-managed companies, satisfactorily meeting public demand for their products or services, are relatively high in spite of the risk of competition, not because of it.)

Thus, if any success is to be achieved in having the comparative earnings standard applied in setting a fair rate of return for a regulated utility, with the resulting more equitable treatment of utility investors, and at the same time to conform strictly to what appears to be the view of the Court, it is essential that conisderation be given to the nature of business risk, the measurement of relative risk, and the relationship between risk and rate of return in the non-regulated sector of the economy.

#### The Nature of Business Risk

Despite that fact that the word risk is frequently used in the course of discussion of business, financial and investment problems, no satisfactory definition of what is here termed business risk has been found. It seems to be generally assumed, as the Supreme Court assumed in three cases referred to above, that everyone knows what risk is, and that it is therefore unnecessary to define it. Nevertheless, it may be helpful for the purpose of this discussion to attempt such a definition.

The following quotation from "The Financial Policy of Corporations" by Arthur Stone Dewing (5th Edition, 1953, pages 287-288) suggests the basic concept of risk in the business or financial area and comes close to defining relative risk (emphasis supplied). Here Professor Dewing is discussing the problem of valuation of an enterprise in the non-regulated competitive area—an important problem in connection with acquisitions, mergers, valuation for estate tax purposes, etc. (The concept that value depends on earnings is, of course, not applicable to a regulated utility, where the converse is true—earnings depend on value as found by the regulatory authority, together with the related rate of return.)

"The capitalization of earnings is the only means at our disposal for determining the value of a going business. . . . Justice Holmes very wisely and precisely summarized the whole theory of value applied to business enterprise: '. . . the

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commercial value of property consists of the expectation of income from it.'

"The capitalization of earnings of a business enterprise is the result of two factors—the earnings

and the rate of capitalization. . . .

"If we assume that a statistical study has disclosed the earnings to be capitalized, the rate at which they shall be capitalized is by no means clear. Under our competitive system of economic values, the business is the instrument which creates the earnings, and the valuation of the business is the valuation of this instrument. It is true, too, under our competitive system, that the price which men will pay for this instrument will depend on the relative certainty with which these earnings can be counted upon to continue. In other words, the rate at which a business shall be capitalized, to obtain its value, will depend on the confidence the buyer may feel in the continuation of the earnings. This is the relative risk of the business itself. The greater the risk, the greater the doubt of continued earnings, the lower is the capitalized value of these earnings; and, conversely, the lower the risk, the greater the value."

Transposing certain words, phrases, the clauses in the quotation from Professor Dewing, with a few additions, gives the following definition of relative business risk; the definition in turn suggests a method of measuring this relative risk subjectively:

The relative business risk of an enterprise is the relative certainty with which expected earnings can be counted on to continue; the greater the doubt of continued earnings, the greater the risk. The rate at which these expected earnings are capitalized in an arm's-length transaction between a willing buyer and a willing seller measures the relative business risk of the enterprise as jointly appraised by the buyer and seller.

There is one aspect of this definition of risk which is significant: Business risk is the chance of a future event or combination of events, the likelihood of which is probably indeterminate, and even the event itself possibly being unknown. For example, the risk to the railroads of the invention and development of the internal combustion engine and its use in highway and air transportation—which will cause future realized income to differ from that deemed most likely from an analysis of all known facts. But the earnings currently being realized by business enterprises can only be the resultant of events which have already occurred, and cannot possibly be affected by a problematical future event. Hence, logically, there can be no causal relationship between risk on the one hand and current results on the other.

True, the *hope* for profits is what induces investors to assume the risk of an investment; the greater the expected profits, the greater the risk which the investor is willing to undertake; and, conversely, the greater the risk, the higher must be the expectation of the profits

to be realized if the undertaking is successful, or the investment will not be made. It is for such reasons as these that "cost of capital" is directly related to business risk. But it would seem to be a false analogy to reason (as the Court apparently did in the Bluefield and Hope opinions) that because expectations must be proportionate to the risk of future events, if an investment is to be made, current results likewise must be proportionate to the risks of the future.

#### Factors Contributing to Risk

It may be helpful at this point to discuss briefly some major factors contributing to business risk, first, to indicate that for the most part, at least, they are not subject to objective quantitative measurement; and, second, to show that, qualitatively at least, regulated utilities are subject to the same or similar risks, as pertain to non-regulated enterprises operating in the competitive area of the economy. That risk in fact exists in the utility field, must not be overlooked.

It is believed that there would be general agreement among Financial Analysts, informed investors, economists, and other students of the problem, that the most important single factor contributing to business risk is the quality of management. Thus Professor Dewing, immediately following the quotation above, goes on to say: "The risk of a business rests on one dominant factor and on numerous contributing factors of less moment. The dominant factor is the relative importance of management."

The importance of good management, not only in day-to-day operations, but also in such areas as research and development, and in meeting and overcoming the other factors contributing to risk discussed below, is self-evident. And while some contend that the quality of present management can be quantitatively measured, the possibility of future deterioration of management cannot be stated numerically. All that can be said is that this possibility exists in both the regulated and non-regulated sectors of the economy, and it could be argued that the risk is greater in the utility field, because of the specialized nature of its operations, leading to less mobility of executives, a tendency toward management inbreeding, and other factors.

Competition, or, rather, the possible future actions of competitors which would have an adverse effect on the present position of the enterprise under consideration, is admittedly a risk to which regulated utilities are less subject than non-regulated enterprises, but it must not be forgotten that they are subject to this risk in varying degrees. The position of the local and inter-city transportation industries is a striking example of very real competition; and it can be shown that the power, gas, and communications industries are also subject to the risk of competition to a greater or lesser extent, both directly and indirectly, in competing with other industries for the consumer's dollar. But offsetting the risk of competition to non-regulated enterprises is their freedom of action in moving to meet adverse competitive conditions, whereas the management of utilities is restricted here by regulation, as the experience of the railroads tends to show.

#### Regulation: A Dragging Anchor

Also, most regulation likewise imposes certain risks, such as restrictive legislation, unwise or prejudiced regulatory action, and regulatory lag which inhibits prompt adjustment of prices and services to changing conditions. Furthermore, regulation places a ceiling on earnings as contrasted with the freedom of non-regulated enterprises to strive for continually improving profits; certainly, this is a "risk" from the investor point of view. In any event, "regulation is the law's substitute for free competition"; the effect of both of these risks, among other things, is to limit profits, not to inflate them, and hence the fact that one group of industries is subject to one risk, and the other to its legal counterpart, does not invalidate the use of the comparative earnings standard.

Relocation of markets or complete loss of demand for its product is a risk faced by both a utility and a non-regulated enterprise. But in the non-regulated area of the economy, in most cases, either productive facilities can be moved to the market, or, if this is not possible, the product at least can be transported to its market; to only a very limited extent is this possible in the utility area. In the case of loss of demand for a specific product, management of a non-regulated enterprise can adapt itself to the condition by conversion of facilities to new products—as an extreme example, buggy and bicycle makers turned to the manufacture of automobiles early in the century—but a utility is virtually helpless in such a situation. The complete loss of markets by a utility is not outside the realm of possibility: a "black box" might be developed which would give every householder his own solar or atomic power plant; the power companies would then be out of business, but the electrical equipment manufacturers would carry on by converting their manufacturing capacity to the production of the "black boxes."

In the case of utilities, substantially all capital is committed to long-lived fixed physical assets; in contrast, the typical non-regulated industrial company has much of its capital invested in inventory and other current assets which turn over quickly, and in relatively short-lived productive equipment. Thus the possibility of unwise commitment in productive assets is a greater risk for utilities, since they must live with their mistakes for decades, whereas relatively prompt corrective action can be taken by other types of enterprises. Even if the expenditure for utility property were entirely justified at the time it was constructed, population shifts may leave it with idle capacity, a risk not found in general by non-regulated industry. The deterioration of the central area of large metropolitan cities illustrates this risk to utilities.

For various reasons, utilities are less able to adjust promptly and completely to changes in general economic conditions, such as inflation resulting from depreciation in the value of the dollar. This list of factors contributing to business risk could be extended; but enough has been said to indicate that utilities are subject to the same or similar risks as are non-regulated businesses. While none of these risks can be quantitatively measured or rated, it appears that, from the investor point of view, a utility may be at least as risky as the average of a cross-section of successful non-regulated enterprises, notwithstanding the utility's "sheltered" position as a natural monopoly operating under the umbrella of regulation. Only most enlightened regulation can mitigate the natural risks inherent in the utility business, and give it a relatively favorable status from the investment standpoint.

### MEASUREMENT OF RELATIVE RISK AND COMPARISON WITH REALIZED EARNINGS

The preceding discussion of factors contributing to risk should indicate the difficulty, if not the impossibility, of objectively measuring relative business risk in quantitative terms.

But it is believed that such a measure can be made subjectively. Professor Dewing in his discussion of the problem of valuation of an enterprise, indicates quite clearly that the rate at which prospective earnings will be capitalized reflects the investor's evaluation of the relative risk pertaining to the business. Again, in utility rate cases, expert testimony on cost of capital, which usually consists of an analysis of the relation of earnings to security market prices, assumes that risk, which is clearly a factor affecting the cost of capital, is implicitly recognized by this relationship, at least as it is appraised by investors. Of course, the investment market may not accurately evaluate the potential risk of unknown, unforeseen future events. The risk to the railroads of the development of the internal combustion engine, mentioned above, is a case in point.

Thus, subject to the qualification that investors and the investment market are not infallible, it appears that the ratio of earnings to market value of securities should give an approximate measure of relative risk—the lower the ratio, the lower the risk, and vice versa—which may be compared with the rate of return currently being realized, to determine the nature of the relationship between the two. Admittedly, earnings for a given year or longer past period are not necessarily an accurate indication of the prospective future earning capacity of a company, and it is the latter which determines the market value of its securities. Hence the ratio of current or average past earnings to market value does not precisely measure the relative risk as seen by investors. Nor does the current market value of securities for a company depend solely on its prospective earnings and relative risk; it may be affected by other factors such as liquidating value, amount of net current assets, etc. Thus, as between any two companies at a given time, the difference in earnings-price ratios will not necessarily be proportionate to the difference in risk. But statistical theory indicates that for a very large number of companies selected at random, the effect of these distorting factors should be offsetting, and thus a valid

# RELATIONSHIP BETWEEN RATE OF RETURN ACTUALLY REALIZED AND RELATIVE RISK AS MEASURED BY EARNINGS-PRICE RATIO



### DISTRIBUTION OF COMPANIES BY RATE OF RETURN AND E/P RATIO

•			•														
	24.0 AND OVER				2	2	4	1	1	1			2		4		17
æ	22.0-23.9		-1			1			1		1.				1	1	6
WORTH	20.0-21.9		1			6	T	2	2	2	1		-			1	17
	18.0-19.9	1	1		2		3	1	4	5	-1	1	2		1	T	23
E E E	16.0-17.9	3	2	2	3	3	i	6	3	4	5	3	3	1	1		40
N <sub>O</sub>	14.0-15.9	1	ŀ	4	7	9	10	3	6	5	3	3			2	1	55
N.	12.0-13.9		5	3	1	4	10	14	5	8	4	6	3	1	1	2	67
RETURN	10.0-11.9	1	2	4	7	5	В	9	-11	8	4	5	4	2	3		73
	8.0~9.9	ı		1	4	3	12	7	15	10	5	2	2	2			64
CENT	6.0-7.9		1		1	5	8	3	10	7	3	1	1	ı	1	1	43
	4.0-5.9	1	1	3	4	ı	3	5	6	3							27
PER	0 -3.9	4		ı	1	1			1			1					9
	TOTAL	12	15	18	32	40	60	51	65	53	27	22	18	7	14	7	441
		0.0 – 3.9	4.0-4.9	5.0 - 5.9	69-09	6.7 - 0.7	8.0-8.9	66-06	6:01-0:01	6.11-0.1	12.0-12.9	13.0-13.9	4.0-14.9	15.0-15.9	16.0-16.9	170 AND	TOTAL
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EARNINGS - PRICE RATIO

NOTE: FOR SOURCE OF DATA, SEE ACCOMPANYING TEXT.

comparison may be made between the ratio of earnings to market value of securities as an index of relative risk on the one hand, and the rate of return currently being realized on the other.

The accompanying Exhibit shows such a comparison. based on data for 441 of the largest industrial companies in the United States, averaged for the year 1956 and 1957. The companies included in the study are all of the companies named in both of these years in the lists of the 500 largest industrial companies in 1956 and 1957 published by Fortune magazine, except for companies reporting a net loss in either or both years. companies whose results were affected by mergers, and companies for which adequate stock price data could not be obtained. "Per Cent Return on Net Worth" is as computed by Fortune. "Earnings-Price Ratio" was computed by relating published earnings per share for each year to the average of the high and low price for the year, a reasonably precise measure in view of stock market trends over the period, which were relatively stable except for a moderate decline in the latter half of 1957.2

On the chart on the upper part of the Exhibit, companies are grouped according to earnings-price ratio (measuring relative risk) in one per cent intervals (except at the extreme left- and right-hand ends of the chart), with the average per cent return on net worth of the companies in each group plotted. On the table on the lower part of the Exhibit there is shown the distribution of the companies by per cent return on net worth and earnings-price ratio. The wide scatter of the rate of return of the companies in each earnings-price ratio group is significant.

Looking at the line plotted on the chart, there appears to be a slight upward trend from left to right, suggesting that the riskier companies — those with a high earnings-price ratio—may in fact earn at a slightly higher rate than the relatively risk-free companies. However, it is believed that no significance can be attributed to this tendency, which could well result from bias from the following conditions which would affect the results when figures for a short period of time are

the basis of the analysis:

1. Due to abnormal non-recurring events, a company might have an unusually good or bad year. The market would discount such a situation in the price paid for the stock; thus the company with abnormally high earnings would have an abnormally high earnings-price ratio, not representative of its true investment risk; and vice versa.

2. Companies having the same intrinsic business risk and the same average potential earnings over a period, may differ materially in volatility of earnings between prosperous and depressed years. The market would discount this difference in internal characteristic resulting from the business cycle. 1956 and 1957 having been better than average years, as far as business conditions and corporate profits are concerned, the effect would be for the more volatile companies to have

relatively high rates of earnings and earnings-price ratios, the latter not representative of their true risk, and vice versa.

3. In the case of some companies with low earnings, the price may reflect primarily other factors such as liquidating value, etc.

After allowing for bias due to such factors as these, the study indicates that there is no apparent relationship between the rate of return actually realized, and the investor appraisal of relative business risk as measured by earnings-price ratios. (It may be said at this point that the results of the analysis discussed above appear to be supported by a similar unpublished study with which the author is familiar, covering a smaller number of companies but an extended period of years.)

#### SUMMARY

The discussion above of the relationship between business risk and rate of return actually realized, suggests the following conclusions:

- 1. There does not appear to be any logical reason why the rate of return actually realized, which is the resultant of past events, should vary with the inherent business risk of an enterprise which is dependent upon the probability of future events.
- 2. Consistent with the logic of the situation, the study discussed in this article seems to indicate that, within the non-regulated section of the economy, there is in fact no relation between the rate of return actually realized and the degree of business risk inherent in an enterprise as measured by investor appraisal.

3. As a corollary to both of the above, it would seem that the Supreme Court was in error in its apparent assumption that the rate of return actually earned by non-regulated enterprises varies proportionate with risk.

4. If there is no relationship between risk and return actually realized, then in using the "comparative earnings standard" to determine a fair rate of return for public utilities, in accordance with the mandate of the Supreme Court that this standard should be met, the regulatory agency can properly give full weight to the level of earnings being realized in fact, in the non-regulated economy, by a broad cross-section of successful well-managed companies, without regard to relative risk. Certainly the business risks of such companies as a group are no greater than the very real risks inherent in a public utility.

#### **Footnotes**

1. See "The Cost of Capital, Corporation Finance and the Theory of Investment," American Economic Review, June 1958. For a statistical treatment of the problem see "Does Going Into Debt Lower the Cost of Capital?," The

Analysts Journal, August 1954.

2. It may be noted that, ideally, comparison should be made between the rate of return on total capital, and the ratio of total earnings to market value of all securities, debt, preferred stock, and common stock; whereas in the case of data shown on the charts, "Per Cent Return on Net Worth" relates to preferred and common stock only, excluding debt, and "Earnings-Price Ratio" relates to common stock alone. Thus, as to individual companies there is

some distortion due to capital structure. But since in general, industrial companies have a relatively small proportion of senior capital, the distortion is not material in most cases. In any event, for the large number of companies included in the study, these distortions are offsetting, in the averages shown on the chart on the Exhibit, and the comparisons shown are valid measures of the basic relationship between relative business risk and earnings realized.

(Editor's Note: Following the publication of the November 1959 issue of The Analysts Journal, a letter was received from Mr. Allen reading in part as follows: "Your readers will undoubtedly notice several remarkable coincidences between my article, and that on internal risk by Professor Mayer which was published in the November 1959 issue of The Journal. For example, we both use the same quotation from Professor Dewing in developing the basic concept of risk; we both use the same terms 'business risk' and 'financial risk', representing the same concepts, to distinguish between two different kinds of risks with which the investor is concerned; etc. As you know, my article was based on a memorandum which I prepared for private circulation about a year ago, a copy of which was sent to you late last summer; and the article itself was submitted shortly before the November issue of The Journal was published. I am sure, therefore, that neither of us had any knowledge of the other's work. I can only add that I am pleased that my own thinking on the subject of risk is confirmed by Professor Mayer's ideas, and that the hope I expressed in my article that there would be further consideration of the whole matter of risk by Analysts, has been realized even before the hope was published.")

#### ELECTRIC BOND AND SHARE COMPANY

New York, N. Y.

#### **Notice of Dividend**

The Board of Directors has declared a quarterly dividend of thirty cents (30¢) a share on the Common Stock, payable March 30, 1960, to shareowners of record at the close of business on March 9, 1960.

B. M. BETSCH, Secretary and Treasurer February 25, 1960.



## Letters . . .

#### Makes Nice Listening

Editor:

The Financial Analysts Journal has become such a unique and outstanding publication that it deserves having something written in reply to the critical letter of Mrs. H. P. R.; and especially the one from TASS, in the last issue.

As a long-time subscriber to The Journal it has been interesting to note its progress—and recently at an accelerated pace. One example is publication, now, every-other-month. And another — that is evidence that the magazine really has "become of age" —is the Letters (to the editor) page.

To have a few disgruntled subscribers is perfectly natural—and in this case quite complimentary. There are bound to be many (and an ever increasing number of) satisfied subscribers. Otherwise, The Financial Analysts Journal could not have made such remarkable progress.

Carlyle J. Plummer Port Arthur, Texas

## \* \* \* From the Campus

Editor:

Congratulations on the new attractive cover of The Financial Analysts Journal! Your excellent publication fills a real need to acquaint students with current thinking in the investment field. I hope that instructors in finance will expose their students to the many fine articles which continuously appear on your pages.

Dr. Philipp H. Lohman University of Vermont

## \* \* \* Appeals to Scholars

Editor:

The Journal is to be commended for its trend toward increasing scholarship in the last two or three years. Obviously, to retain your appeal to practicing Financial Analysts you must print mostly empirical articles, and no doubt it takes some courage to put in a theoretical article like mine now and then. It does increase your appeal to scholars, though. About a year ago I got our library to start a subscription and also to acquire a year's back issues and bind them for use by our students in Securities Analysis.

Robert W. Mayer Professor of Finance University of Illinois

(Courage we have. Keep the articles coming!—Ed.)

#### An 'Editorial Hazard'

Editor:

Two things particularly appeal to me in your January-February issue. The first is the idea of industry comments by corporate executives actually operating in the field being discussed. I have in mind the Brunswick-Balke article. In this I recognize the risk of more than a moderate degree of prejudice, and perhaps even a temptation for the "soft sell." However, the good that can come from an informed discussion far outweighs the risks. Furthermore, I know that The Journal editors, and Analyst readers, are sufficiently questioning of mind not "to be taken in."

I also like the geographical approach to investment possibilities such as Canada and Alaska, in past issues, and Japan in the current issue. How about an "objective" story on Russia's economy by TASS?

Hanz Gregori Newton, Mass.

(The objective observations, excluding the last sentence, we like. And the "needle" we can take, re Russia and TASS—Ed.)

## Feel Free to Comment

Editor:

Having long been interested — as you know—in seeing a correspondence column started in The Financial Analysts Journal, I have been a little disappointed in the absence of letters commenting on stories published in The Journal.

In other professional journals of our standing, there are a considerable number of letters critically analyzing, commenting upon or otherwise carrying forward the subjects of stories previously printed. There is abundant opportunity for this in the case of our publication; but thus far the response has been surprisingly light.

> Robert W. Storer Detroit, Michigan

(Amen!-Ed.)

In our August 1958 issue we published an article under the nom de plume of "Adam I. Dedalus" who was described as a prolific writer on financial matters. We now have a subscriber who would like to contact "Mr. Dedalus," but our records, for that issue, are somewhat incomplete. If anyone can assist us in locating this author it will be much appreciated—Editor.

#### Welcome Aboard

Editor:

After reading an issue of your Journal, I find it most interesting and provocative and would like to subscribe.

R. C. Evanson Boise, Idaho

To Australia — By Air

Editor:

I was recently privileged to see, for the first time, a copy of your excellent publication. I therefore write now to enquire whether it would be possible to arrange a subscription by air mail. If so, would you kindly advise me, by air mail, of the rates so that I may arrange to send you the necessary amount.

James W. Cowan James W. Cowan & Associates Melbourne, Australia

#### FIFTEEN YEARS AGO IN THE JOURNAL

Fifteen years: An accurate measure of a generation

In the January 1945 issue (Vol. 1, No. 1) two authors presented the pros and cons: "Should Security Analysis have a Professional Rating?" At Montreal's June 1959 National Federation Convention, an accreditation plan was approved. The 1945 authors: Affirmative—Benjamin Graham, then president of Graham-Newman Corp., and now well-known author of "The Intelligent Investor"; and Negative—Lucien O. Hooper, Analyst with W. E. Hutton & Co., and former president of the New York Society of Security Analysts.

In the same 1945 issue there is an article entitled "A Method of Valuing Growth Stocks," by George MacKintosh, then with Moody's Investment Service, now with Harriman Ripley & Co. Note the almost identical title, "A Method of Evaluating Growth Stocks," by Dr. Julian G. Buckley, in this issue. As our Paris Analyst friends might observe: "Plus ca change, plus c'est la meme chose."

#### IN MEMORIAM

Charles V. Kinter, 52, an associate with Duff, Anderson & Clark, died Feb. 11. Mr. Kinter, who leaves his wife, Lucille, was a member of The Investment Analysts Society of Chicago. Prior to his last affiliation, Mr. Kinter had been an economic and investment advisor with Clark Street Associates.

#### PRESIDENT'S REPORT

#### FROM NORTHERN STATES POWER COMPANY



Owned by 77,915 shareholders, and serving over 600 communities in Minnesota, No. Dakota, So. Dakota, and Wisconsin

## PREVIEW: NSP earnings-per-share reached a record high in 1959

Preliminary figures for Northern States Power Company's 1959 annual report indicate several new records were set. Here are the highlights:

Total revenues rose to \$170,354,000 an increase of 10.1% over 1958. This is a new revenue record.

Net income was \$25,036,000—an increase of \$2,960,000 over the preceding year, a record net income.

Compared to \$18.518,000 in 1958.

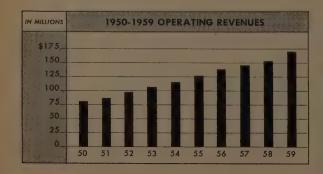
Earnings were \$1.41 a share based on shares outstanding at the end of 1959 and \$1.47 a share on the average shares outstanding during the year. These earnings compare with \$1.30 per share for 1958.

Dividends of \$1.10 per share were declared on the Common Stock, an increase of ten cents a share over 1958.

In 1959 the Company issued 932,268 shares of Common Stock, bringing the total outstanding at year's end to 15.2 million shares.

Investment in net utility plant exceeded half a billion dollars for the first time, reaching a total of \$504,773,000.

During the year, NSP invested \$45.2 million in new construction. An additional \$56 million is ticketed for 1960 to keep ahead of the ever-growing demand for our services.





	50	5,1	52	53	54	55	56	57	58	59
\$1.20_			-							
1.00_										
.80										
.60_										
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A significant addition to the Company's operation was the acquisition of the Mississippi Valley Public Service Company. Their revenues were nearly \$2.8 million in 1959.

Another record was set on December 21, 1959, when we met a peak demand of 1,384,910 kilowatts.

Construction of our 66,000 kilowatt Pathfinder Atomic plant near Sioux Falls, South Dakota, is progressing on schedule. It is planned to be completed in June 1962.

Our complete annual report for 1959 will be available soon. Please drop me a line if you would like a copy.



Man String

Northern States Power Company

# Public Service Industries and the Capital Markets

by Dr. Donald A. Ferguson

THE ESSENTIAL DISTINCTION between public service and other industries today, lies in the fact that prices in the former are truly administered—not by management, but by a regulatory agency operating in the public interest.

Other matters, such as service and financial structure, may also be subject to regulation, but basically the problems of these industries stem from outside regulation of pricing. This regulation has been such as to prevent the public service industries from taking advantage, profit-wise of a favorable trend of demand for their services where such a trend exists. As a consequence, distortion in the allocation of capital (and thus of productive resources) between the regulated and non-regulated areas is the likely result. In addition, price regulation may well operate as a deterrent to greater efficiency and better service through discouraging innovation aimed at cost reduction, or service improvement in the regulated areas.

It seems particularly inappropriate, for example, to limit the rate of return on resources used in the dynamic area of research and development—with the tremendous possibilities of widespread economic benefit resulting therefrom—in the same way as return is limited on investment in the facilities actually providing a routine service.

Despite (and undoubtedly to some extent because of) the restraining effect of regulation on profits the public service industries have turned to the capital markets for a very large proportion of their new capital needs. *Table I* gives some indication of the overall impact of the regulated industries on the capital markets, and of the importance of the public utilities in particular, in total new money issues since 1954. The data for personal savings are also shown for comparative purposes.

About half of total personal savings has been invested in new securities issues of corporations during this period. New issues of the regulated industries constitute half of total new corporate issues. Thus, the importance of new securities issues as an outlet for savings and, at the same time, the very significant part which the regulated industries play in the securities markets, are demonstrated.

#### GROWTH VS. NON-GROWTH INDUSTRIES

Among the regulated industries themselves, however, there are sharp differences in financing problems, and thus in their impact on the capital markets. Rate of growth is one of the important factors involved. Charts I, II & III indicate the rate of growth, as measured by real output since 1950, of the airlines, electric utilities, gas utilities, and the telephone industry. In each case the index representing real output for each of these industries is compared with the Federal Reserve Board Index of Industrial Production. This comparison suggests that these regulated industries may properly be classified as growth industries. On the other hand, Charts IV & V demonstrate that the railroad and telegraph industries may be classified as non-growth industries over the same period.

#### Non-Growth Industries

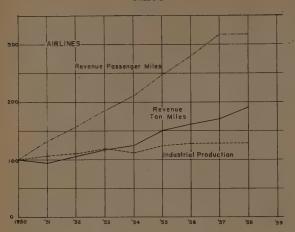
Where little more than mere maintenance of capital is involved, depreciation allowances become the main source of funds for financing capital expenditures.

The primary problem in industries, where substantial growth is not taking place, may then be expressed in terms of the adequacy of depreciation allowances. In non-regulated industries, of course, where pricing and expansion policies are not controlled, income (to the extent realized) may be administered in such a way as to make up for an inadequate measure of depreciation during and after a period of inflation. In other words, so-called earnings may be plowed back to prevent depletion of capital. This is definitely not the case in regulated industry. The low level of allowable profits leaves very little leeway to management in this respect. Thus an even stronger argument than applies generally can be made for use of an adequate measure of economic (or real) depreciation for rate-making purposes in the regulated industries. This argument applies both in the measurement of profit and in the determination of the rate-base.

Additional capital may be needed, however, even in the non-growth industries to aid in financing large-scale improvements required to meet competition; i.e., in the railroad industry where \$14 billion has already been spent in the post-war period on such improvements as dieselization and centralized traffic control systems, or to improve top-heavy capital structures. It is interesting to note that this industry's attempt to halt diversion of traffic, by adopting product rates based on out-of-pocket costs without consideration of arbitrary allocations of

Dr. Donald A. Ferguson is professor of finance and director of Syracuse University's Executive Controls Program, College of Business Administration. He has also taught finance and investment at Harvard, the University of Chicago and the University of California. He holds a Ph.D. from the University of Chicago.





#### Chart IV

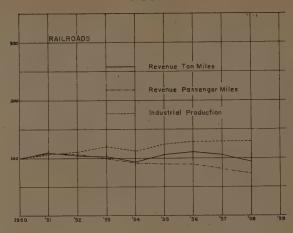
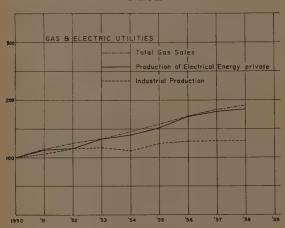


Chart II



Chảrt V

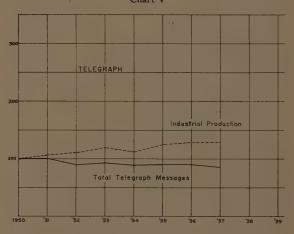
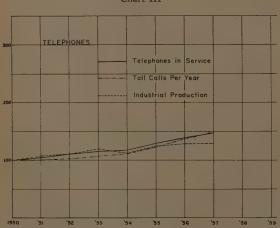


Chart III



existing overheads, has received approval of the I.C.C. (Investigation and Suspension Docket No. 7027, Paint and Related Articles, Aug. 27, 1959).

As a result of adopting a marginal rather than full-cost approach to pricing, railroad net profits may increase significantly. Part of the justification, too, for the lower rates has been the operating economies effected by the improvements already installed. More capital, from both internal and external sources, may thus be more readily available to meet the need for further modernization in this industry. The abandonment of a traditional but uneconomic rate-making principle may herald the dawn of a new era for the sorely pressed railroads. The great need for improvement in earnings is obvious from the very low and declining rate of return on net property in this industry—2.8% in 1958. (See Table III). Government guarantee of loans may be justified as a temporary expedient during periods of

Table I
(in billions of dollars)

	1954	% of total personal savings	1955	% of total personal savings	1956	% of total personal savings	1957	% of total personal savings	1958	% of total personal savings
Personal Savings	18.9		17.5		23.0		23.1		23.5	
Corporate New Capital Issues— Total	7.5	(40%)	8.8	(50%)	10.4	(45%)	12.4	(54%)	10.8	(46%)
		% of total new issues		% of total new issues		% of total new issues		% of total new issues		% of total new issues
New Issues— Public Utility, Transportation and Communication	3.9	(52%)	3.8	(43%)	4.6	(44%)	6.0	(48%)	5.7	(53%)
New Issues— Public Utilities	2.7	(36%)	2.3	(26%)	2.5	(24%)	3.8	(31%)	3.6	(33%)
New Issues— Electric Utilities ————————————————————————————————————	1.7	(23%)	1.4	(16%)	1.5	(15%)	2.5	(20%)	2.3	(21%)

Source: Federal Reserve Bulletin, August, 1959; Electrical World, September 22, 1959.

high interest rates for financing the equipment needs of weak lines. But it is no long-run substitute for an adequate rate of return on investment.

#### Growth Industries

Traditionally, American growth industries have been financed to a considerable extent internally — largely from retained earnings. This source of funds cannot contribute very substantially to the financing of rapid expansion in the regulated industries, since profit rates are so restricted. In fact, even with somewhat higher earnings there is less opportunity to use profits as an offset to under-depreciation. High percentage payouts of reported earnings are required to attract the outside capital needed to finance growth. Thus the existence of a sharp growth trend adds to the financing problems of regulated industries and results in great reliance upon the capital markets for expansion funds. The problem they face is whether their securities will be attractive enough to obtain this continuing large volume of funds from the market in competition with other demands upon that market.

#### AIRLINES

Because of the rapid growth in demand for their services, as indicated in *Chart I*, and their current reequipment programs, the financing needs of the airlines have been tremendous. As *Table II* indicates total invested capital tripled over the period 1950-58. Since World War II, traffic has quadrupled with the trunk lines gaining 13-18% annually. A basic problem affecting the future of this industry is its potential for further growth. The general opinion appears to be that the heavy burden of re-equipment can be met if such a growth rate can be continued.

It is estimated that present planned capacity will require continuing annual traffic growth of 11-13%.

Table II

Total Invested Capital—Public Service Industries

(in millions of dollars)

	1950	1958	% change
Airlines	\$ 407	\$ 1,237	+ 204
Electric Utilities	18,800	35,700	+ 90
Gas Utilities	6,600	15,200	+ 130
Bell Telephone System	7,800	17,000	+ 118
Railroads (net property)	24,600	27,500	+ 20
Telegraph	273	327	+ 20

Table III
Rate of Return on Invested Capital

	Range 1950-58	1958
Airlines	2.8 - 10.4	5.9
Electric Utilities	5.4 6.0	6.0
Gas Utilities	5.8 - 7.0	6.8
Bell Telephone System	5.8 - 7.0	7.0
Railroads	2.8 - 4.3	2.8
Telegraph	1.4 - 6.1	5.8

Sources: Publications of Air Transport Association of America, Association of American Railroads, American Telephone & Telegraph, Federal Power Commission, Edison Electric Institute, American Gas Association, and the Federal Communications Commission.

Table IV
Standard and Poor's Weekly Stock Price Indexes

	1950 (first week)	1958 (final week)	% change
Industrials (425 stocks)	16.55	58.97	+ 256
Railroads (25 stocks)	14.32	34.39	+ 140
Public Utilities (50 stocks)	20.04	43.28	+ 111
Air Transport (5 stocks)	13.80	28.12	+ 104

Though the greater fixed costs of jet equipment raise the break-even point in operations, once that point is passed profits increase very rapidly. Past traffic growth has been due largely to diversion of traffic from the railroads. Major increases, beyond the rate of population growth, must now come from present automobile users.

At the same time that competition with other transportation media is becoming more intense, regulation apparently is aimed at creating a more competitive situation within the airlines industry, especially in the granting of franchises for the more profitable services between major cities. This may complicate the problem of load factor for the expensive jet equipment.

The debt component of airlines financing has increased sharply since 1953, rising from 28% in that year to 43% by 1957. This has happened despite the fact that the major airlines aim at plowing back 50% of profits. Much of the new equipment is being financed by bank and life insurance company loans, amortized on the basis of allowable depreciation charges. This sharp rise in the debt component along with the risk characteristics of its operations emphasizes the need for equity financing in this industry. The past history of rate of return, which fluctuated sharply over the 1950's (see *Table III*)—approximately from 3-10%—is further evidence of the risk involved. A beter coverage of fixed charges is needed for debt financing and a better earnings and dividend record for stock financing.

The market behavior of airlines common stocks as compared with industrial stocks, as shown in *Table IV*, gives evidence of the low esteem in which investors have held this undeniably rapid growth industry. In fact, the market has valued the whole airlines industry at \$800 million, less than one railroad, the Santa Fe. Substantial change in investors' attitudes can be expected only after the establishment of a favorable earnings record. The recent decision of the Civil Aeronautics Board allowing a higher rate of return (near the 10% level) in ratesetting is a recognition of this situation. Eventually this changed approach to regulation of profits may result in much improved market performance for airlines securities and thus make feasible the public offering of further common stocks.

#### OTHER GROWTH INDUSTRIES

In the past, the electric and gas utilities and the telephone industry have had little difficulty in raising very large amounts of capital through the sale of securities. Their long-term stability of earnings, as illustrated in Table III, and dividend payments has attracted income seeking investors to their securities. However, the debt component of the utility industry has been steadily increasing in the post-war period to the point where it now exceeds 50% of total capitalization for the operating electric utilities. The debt ratio of the Bell system

also rose in the early post-war period to a peak of slightly over 50% but has since fallen off to the low 30's.

These ratios compare with a 15% debt ratio for 20 large manufacturing companies, and may be justified on the basis of earnings stability as well as the tax advantage to the companies concerned. In view of present regulatory practices and institutional policies with respect to investment standards for bond purchases by institutional investors, future needs of the utilities must be financed to a greater extent than previously by equity funds. As an illustration of the increasing new capital requirements of the utilities, Electric World for September 22, 1958, forecasts that annual construction expenditures for the electric utility industry will rise to \$13,830 million by 1975, as compared with slightly over \$5,000 million in 1958. By 1965, they are forecast at slightly below \$7,000 million. These constitute considerably higher proportions of projected Gross National Product—\$835 billion and \$581 billion—than in 1958. The telephone industry has already been raising nearly 40% of its total financing through the sale of common stocks as compared with only 7% for all corporations. Thus the impact of utility offerings upon the market for new issues of common stock may reasonably be expected to be substantially greater than presently.

On the basis of the recent market performance of utility common stocks, compared with that of industrial stocks, there is some reason to doubt that the market will continue to provide at reasonable cost the growing needs of the utility industry for equity funds. Table IV demonstrates that industrial common stocks have experienced more than twice as large an increase in market value as utility stocks (including gas and telephone companies) over the 1950-58 period. The same type of relationship with industrial stock prices also applies to the common stock prices of the airlines industry. There remains some question as to how successful these regulated companies will be in raising the equity capital they obviously need without first improving their profit position so as to compete with industrial companies for a limited supply of investment funds.

In industries, like utilities and communications, where technological improvements have provided widespread benefits and give promise of still greater benefits, it would seem reasonable, not merely to include the full investment in research facilities in the rate base, but to boost the allowable rate of return because of the greater risk involved in this dynamic area. The provision of incentives for progressive, research-oriented companies, their managements and their owners, should be regarded as part of the regulatory agencies' function. More favorable treatment by the regulatory agencies in rate-making appears to be one, though not the only, pre-requisite to success in attracting a growing proportion of total externally raised capital funds.



## ...SO GROWS UNITED GAS

As the Gulf South grows, so grows United Gas Corporation. To keep ahead of gas requirements in the dynamic, expanding economy of the Gulf South, United Gas has made capital expenditures averaging more than one million dollars per week over the past ten years. More exploration and drilling, new pipe lines, larger compressor stations, more customers....that's the story of United Gas in 1959, and again in 1960.



Taken at its first formal afternoon meeting in the new Club headquarters, New York Analysts are shown participating in a Paper Forum on the earnings estimates for major paper companies, as well as foreign stocks and markets. At center is the permanently installed speakers panel. This, the main dining room, will accommodate approximately 275 for lunch or dinner.

## New York Analysts Entertain Guests, Press, in New Quarters

by Vartanig G. Vartan

THE NEW YORK SOCIETY OF SECURITY ANALYSTS, whose luncheon habits move the stock market, bit into London broil at their gleaming new home after 19 years of dining above Schwartz' Restaurant, at 56 Broad Street.

At 15 William St. (where the Coachman Restaurant is the caterer, serving meals from the Club's own modern kitchen), the main dining room sported pastel walls,

This article is reprinted with permission of The New York Herald-Tribune.

a springy tan carpet, recessed lighting—and piped-in music. Near by—and equally new—opened the doors of two private dining rooms, a library, a lounge and even a tavern room.

The new lunch site will spawn countless thousands of Wall Street market letters and correspondent memos in years to come.

For the first lunch a capacity crowd of some 300 Wall Streeters turned out. They greeted the new quarters with such expressions as "Wow!"

"We pick up a lot of ideas at these meetings," an Analyst told a reporter.

"We're looking for market tips, too," confided a waiter whose jacket matched the gray on the new china

(Continued on Page 90)



Lawrence R. Kahn, center, president of the New York Society, is presenting Ralph A. Rotnem, right, past president, with a plaque in recognition of service rendered as its former chief officer. Looking on is Phillip L. West, vice president and Director of Dept. of Stock Lists of the N. Y. Stock Exchange.

The lady is amused: Mrs. Harold M. Gartley. Mr. Gartley, right, who runs his own financial public relations firm, has been a Financial Analyst for many years. Joining the festivities is Howard Carswell, executive editor of *The American Banker*.











(Top, left) New York Society's brass at a "rump session." From left to right: Edward R. Holt, house chairman; Edward S. Wilson, vice president; Donald B. Macurda, secretary; and Gerald L. Wilstead, treasurer. Responsibility for much of the new Club's elegant quarters was borne by these men.

(Top, right) John Stevenson, left, is shown talking with Phillip L. West, vice president and Director of Department of Stock Lists of the New York Stock Exchange. Mr. Stevenson, aside from his duties as a Wall Street investment firm partner, is also business manager of The Financial Analysts Journal.

(Center, left) Femininity (and both Financial Analysts) lends its charm to the Club's opening reception. Doris Maydin, left, and Frances Haidt flank Donald H. Randell.

(Center, right) Nicholas F. Novak, right, chairman of the New Headquarters Committee (since 1954) is shown with Lancaster M. Greene, Headquarters Committee member.

(Right) Pierre R. Bretey, well-known Wall Street rail Analyst, and editor of The Financial Analysts Journal, was caught by the photographer "remembering when" The Journal first hit the Street; it was January 1945. Editor Bretey is holding a copy of the first bound volume.



March-April 1960

# RECORD SALES, EARNINGS MAKE '59 BEST EVER FOR WESTERN UNION

Financial highlights from Western Union's 1959 Annual Report:

1959

1958

TOTAL OPERATING REVENUES

\$276,188,799

\$255,138,709

INCOME FROM OPERATIONS

\$16,499,988

\$11,926,596

after Federal Income Tax

PER SHARE

\$2.59

\$1.89

Quarterly dividend, paid January 15, 1960, raised from 30 to 35 cents a share... fourth increase since dividends were resumed in 1950.

#### Outstanding examples of Western Union expansion:

Leasing of custom-built private wire systems to industry and government has increased over 500% during the past ten years; revenues for the past year reached an all-time high of \$52,302,918.

Two nationwide data transmission systems for the U.S. Air Force were leased, scheduled to be placed in service by 1961, and will add approximately \$20,000,000 to the company's annual revenue.

Construction begun of a new coast-to-coast microwave beam system which, when completed in 1961, will result in vastly improved and augmented circuitry.

"Introfax" Facsimile Systems—leased to business and government users—produced nearly \$2,000,000 in revenue. One example: the first nationwide high-speed facsimile network, a 12,000-mile system installed for the Strategic Air Command.

"Wirefax" - Western Union's public

facsimile service linking New York, Washington, Chicago, Los Angeles and San Francisco—was inaugurated, providing facilities for public use in transmitting full-page communications, letter-sized documents, drawings and other recorded data.

"Telex"—the new service that permits users to dial other subscribers in eight seconds or less for direct, two-way telegraphic communication—was extended from New York to Chicago, Los Angeles and San Francisco... scheduled for expansion to other major cities throughout the country.

The Complete 1959 Report of Western Union will be sent to you upon request. Simply address: Western Union, Public Relations Department, 60 Hudson St., New York, N. Y.



## The Investment Evaluation of Scientific Research

by Robert L. Newton

WHEN AN ANALYST ATTEMPTS TO APPRAISE the investment values of scientific research, he is most frequently confronted by two different problems. Often he desires to appraise the over-all research efficiency of a particular industrial organization.

For example, he might wish to compare the research organizations of two large chemical or electronic companies. Secondly, from time to time, it is necessary to look at one particular scientific development, or invention, and attempt to determine what the economic value of this invention might be. In the first case we are dealing with a group of people, and trying to decide how productive they may be in the coming years. In the second case, we have a practical result of such research which has not yet been converted into profits.

Many Analysts have attempted to evaluate research organizations by a purely mathematical approach, such as the percent of sales being spent on research or the percent of net income, or some other similar figure. One problem that develops very quickly in such an approach is that of definition of terms. Very often what one company classifies as research, another might classify as engineering expense, sales expense, or even plant start-up costs. From an Analyst's standpoint, it is probably not possible to make a definition of research that would cover all fields of industrial research. It is, however, possible to clearly define what should be considered research, in any particular industrial group.

Within the broad limits of industrial research there are often considered to be three general types: fundamental, long range, and applied research. By definition, fundamental research seeks knowledge for knowledge's sake and, therefore, has little or no immediate investment value. It is, however, a very necessary part of the structure of science. Those who do fundamental research are generally considered to be the elite of science and the pioneers. For a large industrial organization to ignore fundamental research is to ignore the pioneer, and to reap where they have not sown. In certain fields of research much of the best fundamental research is done in an academic atmosphere.

A recent article<sup>1</sup> by Dr. Harold Gershinowitz, president of Shell Development Company, points out the

fundamental research on fundamental research. Frequently in industry when fundamental research discovers something that might have considerable commercial application, the tendency is to work on this application rather than pursue the purely intellectual aspects of the research program. Dr. Gershinowitz points out further that in a large research organization, applied research often supplies useful leads to those working in the fundamental areas, and thus there is a desirable feed-back.

In evaluating the investment value of a particular

problems of keeping groups originally intent on doing

In evaluating the investment value of a particular research organization it is simpler for us to consider it to be a complete unit and its objectives pretty much that of applied research. In other words, the industrial research organization tries to seek answers to a specific problem, either to develop new products or processes to make such products. Usually the engineering design and production engineering, necessary for such products, are not considered part of research.

#### Effort Is Not Economic Success

From an investment standpoint there are three primary reasons why a research organization might be considered to be inefficient. First, if there is no solution to the problem which has occupied the research group's efforts, obviously the results will be unsatisfactory. Unfortunately there are many such research problems which lack a solution, either because we are attempting to defy a law of nature we do not fully understand, or the current state of scientific knowledge makes a solution extremely improbable. Few Investment Analysts would get very excited about an announcement of the development of a perpetual motion machine, since such a device attempts to defy the second law of thermodynamics. The very small amount of information we possess concerning cancer makes an over-all solution to the problem improbable on a near term basis. Secondly, a research organization fails from an investment standpoint if the problem with which it is concerned was not really worth solving in the first place.

To put this another way, there are many things invented and discovered each year which have no economic value, and from an investment standpoint must be regarded as failures, irrespective of their intellectual and scientific values. Closely related to this type of failure is the research organization which is directed toward maintaining a company's position in a relatively static field. Here the research expenditure is necessary for competitive reasons and obviously does not rate the high degree of anticipation which the investor often associates with major research programs. A third reason for research inefficiency, from the investment standpoint, is that it perhaps took a longer period of time for

<sup>1.</sup> H. Gershinowitz, American Scientist 46, 24-32 (1958).

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this research organization to find the answer to a particular problem than it took a competitor to accomplish the same task. It must, of course, be assumed that similar amounts of money and scientific personnel were applied by both companies over approximately similar periods of time. In recent years industry and the government in military programs have placed increasing reliance on the use of so-called "Crash" programs where one attempts to do in one year what could much more efficiently be done over a period of four to five years, or longer. Our efforts in space exploration certainly represent a "Crash" program as compared with the long-range efforts of the Soviet Government which extend back to World War II.

#### Difficulties of Comparison

Research organizations differ in efficiency primarily because individuals differ greatly in their creative ability. In many fields where the production problems are not very complex one research genius is worth innumerable workers of only average ability. Such a genius is most productive where theoretical knowledge is an important tool such as in physics and chemistry. In certain other types of industrial research investigation is carried on to a considerable degree by trial and error. Under such circumstances the average academic achievement of the research workers may be quite different from a science where there exists a good theoretical basis for experimentation. The screening part of drug research is certainly an excellent example of research by trial and error. For these and other reasons it seems possible only to compare research organizations of one company with those of another in the same industry, and under similar circumstances, such as the size of the organization and the length of time which it has been in operation.

Analysts, and corporate managements, are frequently confronted with the problem of just how much should be spent on research. To spend more than the previous year means little, since the entire trend of research costs and spending has been upward. Theoretically, one might correlate industry growth rate with percent of net income spent on research, since one would expect research money to be spent in direct proportion to the opportunities for profit that exist. In actual practice the correlation is very poor. This is probably because companies, in relatively mature industries that were created by research, still feel a strong desire to support the effort. Frequently new industries are created by one major break-through and efforts are initially concentrated in developing markets, rather than broadening the technical position. Since the long-term trend of research spending has been one of steady increase, the question becomes what is the maximum a company should spend. The best research consists of a continuous program over a number of years. Any significant fluctuations in the number of personnel is regarded as very wasteful and likely to damage the long-term efficiency of the organization. Thus research can almost be considered to be a fixed charge (in constant dollars). Fixed charges are "old friends" to the Analyst, and he can easily calculate how many times they are earned and the underlying financial support that such research enjoys. The following table compares the research expenditures of four leading drug companies with four major chemical companies:

	Res	earch	(I) Interest Chgs.	(II)	Operat.
Chemical Companies (1958)		% of Net Inc.	+ Deprec. + Pfd. Div.	Research	Income I & II
			(\$ Mil	lion)	
duPont (Ex G.M.)	4.9	40.5	140.8	90.0	2.24
Union Carbide	5.5	56.8	138.7	71.0	1.72
Allied Chemical	2.5	47.4	63.1	16.0	1.68
Monsanto	4.3	67.8	51.3	23.4	1.39
Drug Companies (1958)					
Lilly	8.7	66.3	6.3	15.7	2.40
Merck	8.3	61.8	9.1	17.1	2.16
Upjohn	8.9	58.0	4.3	13.0	2.70
Parke, Davis	4.9	30.0	3.6	8.4	4.65

While there is a wide variation in the percent of sales going into research, the companies are far more nearly alike when the ratio to net income is studied. Since 1958 was a recession year, it shows how well the chemical companies can support research even under adverse circumstances. Large research budgets, like other overhead charges, increase leverage on earnings. These ratios indicate the drug companies have relatively more earnings supporting their research program. Since chemical research seems to be financed on a sound basis, and many profitable opportunities exist for drug research, one might expect a continued rapid increase in such spending. In fact, unless the Federal government places a serious cloud over drug company earnings, one might expect many drug companies to continue to increase research spending twice as fast as earnings increase, until the ratios are more comparable to those characteristic of chemical companies. On the other hand, research expenses and earnings for chemical companies should grow at more nearly the same rate.

In summary, a company's research spending should not be more than it can easily afford, even under adverse business conditions, so as to maintain continuity of the program. For competitive reasons, a company should not spend much less in its particular areas of interest than its leading competitors.

#### WHY RESEARCH IS SUCCESSFUL

We shall now look at a number of reasons why research programs are successful. Perhaps the single most impotant element in success involves the field in which the investigation is being conducted. It is a well-known phenomenon that after years of waiting very often several completely independent investigators will discover the same phenomenon at approximately the same time. In other words, the time was right for a certain invention. Even if equal scientific efforts were applied in all areas of science, it is unlikely that knowledge will advance in each of the fields at the same pace.

In new fields, knowledge tends to advance at a very rapid pace until some technological or economic obstacle is encountered which may require a major fundamental research program for its solution. Viewed in this light, solid state physics, and its investigation of semiconductors, is a very new science, whereas atomic energy—particularly with regard to the generation of electric power—is almost an old science.

In the case of atomic energy many people have come to believe that a real advance in the application of this power must await major advancements in fundamental research. Medicine is so new a science that it is possible to discover very important curative agents without any knowledge of the mechanisms by which they work. We have hardly begun to reap the benefits of fundamental research in this field. One of the best indications of the potentialities of a research organization is the record of its achievements in the past. As in many other fields, success tends to breed success. A record of important scientific achievements will naturally attract more qualified post-graduate students to that organization, and it will tend to be self-perpetuating. In looking at the past record of a company, the number of important scientific achievements is perhaps more significant than the total economic success. Often outstanding financial records are created on the basis of one single invention which could have been, in a large measure, accidental. Too often the Analyst will place a very high rate of growth on a particular product and a high value on the organization that produced that product, when in reality that organization is quite unlikely to duplicate the earlier achievement—at least in the foreseeable future. Scientists tend to evaluate re-search departments in terms of the reputation of the individuals who are the keystones of the organization. This scientific reputation is made up almost entirely from past accomplishments in research.

#### Opportunities for Big and Small

While it can certainly be said that the minimum size research organization is one man, in many fields of investigation a certain optimum size exists. Often a particular area of science is of such great commercial importance and knowledge is advancing so rapidly, it is necessary to have a large research organization to remain competitive. In such a case a small company that spent a very large percentage of sales on research might still have less than the optimum size staff. In the drug industry, for example, few small companies would wish to spend money to search for a new broad spectrum antibiotic in view of the large sums now being spent in that field by certain major drug companies. There are, however, many other areas of medicine where the economic stakes are not so large and where the small company may well be able to put as many or more investigators on a particular project as a large company. The astounding success of many specialty drug companies in the past 10 years is certainly good testimony as to the opportunities that exist. In larger research organizations it is possible to maintain a more or less complete research society. In other words, it is possible to have some investigators doing fundamental research, some long-range research and, of course, the vast majority doing applied research. The inter-action of these three approaches certainly has a beneficial effect. A large research organization also makes it possible for scientists of many different disciplines to work on the same problem.

The ultimate economic success of a research program is often determined by the value of the patents which are awarded. In certain fields patents are much more difficult to secure and, more important, much more difficult to protect than in other fields. This is partly because of patent law, and partly because of the characteristics possessed by certain inventions. If, through almost innumerable modifications, it is possible to achieve approximately the same results, real patent protection for such a development will be almost impossible to secure. It is partly for this reason that patents held by chemical companies tend to be more valuable than those held by electronics companies.

Perhaps the most difficult task that an Analyst has in connection with scientific research is the evaluation of a particular invention or scientfic development. It should be remembered first that this is often very difficult even for a scientist who is highly trained in that particular field in which the development occurs. History is full of examples of scientists who did not realize the true importance of their own discovery. Penicillin is but one example of many such long unrecognized discoveries. The importance of the German rocket development during World War II was apparently well recognized in Russia, but not in this country. If the scientist tends to err on the side of not realizing the full potential of his discovery, it can be truly said that the stock market, at least in the past few years, has erred very much toward over-optimism concerning many fundamentally unpromising developments. The Analyst must necessarily work with superficial knowledge of the invention he is trying to appraise. Such superficial knowledge is often worse than no knowledge at all, since it tends to lend confidence that is not deserved.

The managements of companies with large research organizations face very much the same problem, namely, that of deciding the relative importance of various developments that come out of their laboratories. The managements, however, have the distinct advantage of considerably more knowledge than that available to the Analyst. Often the final decision is made by managements which are not technically trained, but who rely heavily on the advice of certain scientifically trained people whose judgment they respect.

#### Will Discoveries Lead to Dollars?

Without the benefit of such scientific advice, what are the characteristics of a scientific development that are likely to lead to financial success? First of all, one must be able to show that, even if all the inventor's claims are achieved, the market is sufficiently broad to make it worth the price you must pay to participate

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in this development. We must also have some idea of the likelihood of securing this market. In short, some sort of a market survey should be conducted. Secondly, we should understand the consequences of failure. In other words, does the invention have other practical applications than the one presently envisioned? Thirdly, we must know whether the invention is really new and substantially better than anything else that now exists for this purpose. Many companies who claim that a certain percentage of current sales is derived from products developed in the past five years would have a great deal of difficulty proving the novelty, or for that matter how much better the new products were as compared with those already being sold. Fourthly, we should know whether the invention is likely to lead to other inventions, perhaps more valuable than the first.

We want to know whether this is a short step forward, or a giant step forward. For example, the invention of the transistor, which opened the whole field of solid state electronic devices, quite probably will yield some day to inventions far more important than the transistor. In the drug field, the Salk polio vaccine was a giant step forward, and it permitted the develop-

ment of much more potent vaccines for many diseases previously unapproachable by vaccine procedures. Fifthly, is it patentable and how good is the patent likely to be? Finally, after the easier methods of evaluation are nailed down we must establish whether the technical features of the invention are correct. Here one must rely almost entirely on the opinion of experts—preferably specialists in that particular field. If the process is totally new, the risk of failure is, of course, much greater than when less innovation is involved. Many very large and successful companies proceed very cautiously with regard to new processes. They may operate pilot plants, or semi-commercial work, for several years deciding whether a commercial plant is justified, and to establish the features such a plant should have. In contrast, Wall Street frequently underwrites the cost of new plants that have very little technical preparation.

To summarize, we have explored a number of ways that one can appraise a research organization and a technical discovery. It is the writer's feeling that good judgment, combined with experience, is more likely to yield a correct appraisal than any mathematical formula that one can visualize.



## UNION CARBIDE

A cash dividend of Ninety cents (90¢) per share on the outstanding capital stock of this Corporation has been declared, payable March 1, 1960 to stockholders of record at the close of business Feb. 5, 1960.

JOHN E SHANKLIN
Secretary and Treasurer
UNION CARBIDE CORPORATION



#### GENERAL PORTLAND CEMENT COMPANY

Common Stock Dividend

The Board of Directors of General Portland Cement Company has this day declared a quarterly dividend upon its Common Stock of 30 cents per share, payable March 31, 1960 to stockholders of record at the close of business on March 10, 1960. The stock transfer books will remain open.

HOWARD MILLER, Treasurer

February 24, 1960

## COMMERCIAL CREDIT COMPANY

### AND SUBSIDIARIES

## Highlights from the 48th Annual Report

FINANC	E
COMPA	NIES

Wholesale Financing
Instalment Financing
Commercial Financing
Equipment Financing
and Leasing
Fleet Lease Financing
Rediscounting
Personal Loans
Factoring

#### INSURANCE COMPANIES

Automobile Insurance Credit Insurance Health Insurance Life Insurance

#### MANUFACTURING COMPANIES

Pork Products
Metal Products
Heavy Machinery
and Castings
Malleable, Gray Iron and
Brass Pipe Fittings
Metal Specialties
Roller and Ball Bearing
Equipment
Machine Tools
Toy Specialties
Pyrotechnics

**Printing Machinery** 

**Valves** 

		1	959			1	958	
GROSS INCOME	\$	182	805	970	\$	163	672	045
NET INCOME:								
Net income before interest and discount charges	s	106	965	640	2	90	980	103
Interest and discount charges	Ť		017		Ť		732	
Net income from current operations, before taxes	\$	50	948	515	\$		247	_
United States and Canadian income taxes		23	087	649		21	444	888
Net income credited to earned surplus	\$	27	860	866	\$	26	802	391
Net income per share on common stock		\$!	5 48			\$5	5 29	
Common shares outstanding at end of period		5	082	513		5	066	255
RESERVES:								
Reserve for losses on receivables	\$	21	907	729	\$	18	617	824
Unearned income on instalment receivables.		106	995	879		79	137	245
Unearned premiums—Insurance Companies		33	673	708		27	954	932
Available for credit to future operations	\$	162	577	316	\$	125	710	001
Operations shown separately are, briefly:								
FINANCE COMPANIES:								
Gross Receivables acquired: Motor retail	\$	756	681	643	\$	553	129	161
Farm equipment, mobile homes and other retail		291	485	431		205	271	573
Loan receivables		216	384	173		154	641	630
Motor wholesale	1	315	331	558		904	515	368
Open accounts, leases, other wholesale notes, mortgages and factoring receivables	1	601	390	684	1	406	929	123
Total receivables acquired	-	181		_	_		486	_
Total receivables outstanding December 31	-	720			-		455	=
Net income of Finance Companies	\$		670	==	\$		257 9	
INSURANCE COMPANIES:								
Written premiums, prior to reinsurance	\$		952 601		\$		727 052	
Net income (including Cavalier Life Insurance Co.)		9	763	635		7	906	844
MANUFACTURING COMPANIES:								
Net sales	\$	126	949	092	\$	133	233	066
Net income		3	426	856		2	637	597



Finance and insurance services are offered by our subsidiaries in more than 700 offices throughout the United States and Canada. Nationally known products are manufactured by our subsidiaries in ten plant locations.

COMMERCIAL CREDIT COMPANY Baltimore 2, Maryland



It happened 2000 years ago . . .

Roman chariots raced over Roman roads carrying the banner of conquest to every corner of the known world . . . and an empire was born!

Rome reigned for over 400 years . . . largely on the strength of Caesar's legions and the fantastic durability of Pulvis Puteolanus.

It was Pulvis Puteolanus, that built the roads over which Rome rode to world conquest... the aqueducts that carried Roman water... the buildings that housed Roman nobles... and the bridges that spanned Roman rivers.

Pulvis Puteolanus . . . CONCRETE!

The discovery of concrete brought count-

less comforts and conveniences to ancient Rome. And today, after 2000 years of experiment and research, a new, scientifically-tested-and-improved concrete is bringing even *more* comforts and conveniences to modern America.

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Pulvis Puteolanus in ancient Rome . . .

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And then, as now, serving so many people in so many ways!



Southern Materials

## Financing the Mobile Home Industry

by Frank D. Boynton

IT WILL NO DOUBT SURPRISE many of you to know that the trailer industry, more recently known as the mobile home industry, had its beginnings around the turn of the century—and not in this country, but in the British Isles. There, trailers, known as Caravans, are small in size, and until the last few years, were used mainly for vacations. Present annual production of British Isles manufacturers totals 40.000 units.

The American version came into being at the beginning of the depression in the thirties. Best known and the largest of the early companies was the Covered Wagon Company. Other early names which still survive are Vagabond Coach, Palace Corporation, Travelo, Trotwood, and Zimmer. The infant industry was catapulted into its first boom in 1936, following publication of an article by Roger Babson, who predicted that within a few years one-fourth of all American families would be living in trailers. As a result of this article, dozens of trailer manufacturing firms were organized, only to fold in the recession of 1937 and 1938.

The advent of World War II stopped the production of trailers for civilian use. The first hint of the future role of the trailer, as a housing factor, came in 1942 when the federal government placed orders with various trailer manufacturers for 35,000 units. These units were moved to critical wartime housing shortage areas and were rented to civilian war workers. The magnitude of this order may be realized when it is known that annual production prior to World War II never reached 5,000 units. During the war, the chief worry of many trailer manufacturers was, what will happen when the government dumps 35,000 rental units on the market?

The close of the war opened the second boom phase of the industry. Black market conditions prevailed through 1946, with 10 buyers for every trailer that could be produced. Again, dozens of new manufacturers entered the field. These, for the most part, were small operations organized by individuals with limited business experience and capital. The recession of 1948-1949 coincided with the ability of the older manufacturers to obtain ample materials for the first time since the end of the war. The net result of this was that the newer companies found that they were unable to sell their inferior product, and a large percentage failed.

Until this time, the industry catered exclusively to vacationers, gypsies, and itinerant workers. The models produced were small in size, without modern conveniences, and retailed from \$1,000 to \$2,000. The small

trailer home, plain by present standards, typified the prewar product of the industry.

Radical Changes Stimulated Sales

This situation was radically changed in 1948 when one enterprising manufacturer brought out a line, complete with shower, chemical toilet, hot water heater, and electric refrigerator. The house trailer thus had its start as a permanent home for a steadily increasing number of Americans.

Two things resulted from the bold move of this manufacturer. First, all trailers produced up to this time became obsolete, saleable only with difficulty at reduced prices. Second, competing manufacturers hastily redesigned their product, with ever increasing emphasis being placed on size, interior appointments, and price. This trend continued without interruption through 1956, by which time mobile homes, as they were now called, ranged in size from 25 ft. to 60 ft. in length, available in single, two-story, or tri-level models, and with one to three bedrooms. Bathrooms, kitchens, and interior appointments were superior to those found in most stationary homes. Prices ranged up to \$10,000 for stock models.

The trend toward the use of the trailer as a home received its greatest impetus in 1955 with the introduction by one manufacturer of the 10 wide. Up to that time, all trailers had been limited to widths of 8 feet, due to existing highway restrictions. The 25% greater width of the 10 wide permitted vast improvements in interior floor plans. Since its introduction, the success of the 10 wide has been so great that today 75% of all mobile homes produced are 10 wides. In fact, 12 and 14 ft. wide units are being produced, but volume-wise do not as yet amount to much.

Serious problems came into being through the steadily increasing popularity of the 10 wide. Eight wides became obsolete and increasingly difficult to sell. During the past two years, this problem has been intensified by the ability of the mobile home manufacturers to produce 10 wides at a substantially lower price than the 8 wides, which were produced in 1956-57. The results of this basic change of policy by manufacturers has caused a host of the higher priced 8 wides to be abandoned or voluntarily returned to the dealer, many after being occupied for several years. Dealers, suddenly faced with more repossessions per month than formerly experienced in years, suffered sharp losses. Many retired from business voluntarily. Others were forced into bankruptcy, fraud losses skyrocketed, delinquency and inventory figures rose to all-time highs.

There is some evidence that this situation has reached its peak, and that future statistics will make more cheerful reading. For example, it is felt that the equities in

Frank D. Boynton, board chairman of Pioneer Finance Co., has a background of investment banking, and from 1930-'41 he was a director of Baker, Simonds & Co. In 1938 he founded Pioneer Finance Co., Detroit, specializing in mobile home financing.

8 wides still occupied are so substantial that few, if any, will be abandoned from now on. It is also probable that trades to 10 wides can now be made by dealers on a satisfactory basis.

I believe that this adjustment, painful as it has been, was necessary if the mobile home industry was to continue to prosper. I have always believed that the mobile home industry was a good small business and a poor big business; also, that the mobile home fitted into a certain niche in the housing field, and that as long as it remained in that niche, the industry would continue to prosper. I have never changed my mind on this analysis.

#### Industry Again on Sound Basis

Today, the industry is back where I think it belongs. At the Mobile Home Show, recently in Dallas, I saw many makes of 10 wide mobile homes, with factory price tags ranging from \$3,000 to \$4,000. Quality-wise, they were the equal of former 8 wides, which sold at substantially higher prices. I am satisfied that the mobile home industry is again on a sound basis, and that all segments of the industry can look forward to the future with confidence.

Today, the mobile home is a permanent home to nearly four million Americans. We are often asked, "Just who buys a mobile home and why"? Statistics taken from the records of one of the industry's largest manufacturers show that 50% of the buyers are skilled workers; 27% are construction workers; 15% are military personnel; 4% are professional people; and 4% are retired couples. It is also interesting to know that the average age of today's mobile home buyer is 36, his family totals 3, and his yearly income is \$5,200.

Today's average mobile home buyer purchases a mobile home 40 ft. to 45 ft. long, 10 feet wide, costing \$5,200, or, just one year's income. Three out of four new buyers finance their purchase, ordinarily paying 25% or more down, and financing the balance over a period of from three to seven years.

Why do people buy mobile homes? Primarily for three basic reasons. A mobile home provides low-cost housing. A mobile home comes completely furnished. Kitchens and bathrooms sparkle with the best and latest equipment. Living rooms and bedrooms come equipped with furniture designed especially for mobile homes by some of the country's leading manufacturers. The modern mobile home is a revelation to most people, as well as a decided improvement over their former old and run-down house or apartment.

A mobile home provides a new measure of security for its owner. Low in cost, the owner can easily pay for it within a very few years. He knows that if, for any reason, he has to relocate, it will not mean either separation from his family, or loss of equity in his home.

A mobile home provides new freedom for the housewife. Women have always been enthusiastic over mobile home living. To them, a mobile home means freedom from the care of a large, often old and run-down house. Thus emancipated, she has more time for her family, more time to make new friends, and more time for social activities.

Entirely apart from the mobile home is the Travel Trailer. Travel Trailers range in size from 14 ft. to 25 ft., and are ideal for economical family travel and vacation use. Interest in Travel Trailers has been greatly stimulated in recent years, both by the increasing amount of leisure time available to many families, and the formation of Trailer Travel Clubs.

#### 1959 Marked a New High

Figures recently released by the Mobile Home Manufacturers Association show that 1959 marked a new high for the industry, both in dollar volume and the number of units sold—the figures being \$688,000,000, and 150,000, respectively. Mobile homes accounted for two-thirds of the unit volume and Travel Trailers one-third.

Financing of any new product must of necessity be difficult. If at the same time the new product involves a basically different conception of living, travel, or entertainment, problems are multiplied many fold. The average man usually does not have the capacity to visualize the vast changes and opportunities which the introduction and successful exploitation of a basic new product or idea will bring about. Financing the mobile home originally presented much the same problems as were faced by the automobile, radio, and numerous other products when first placed on the market. The mobile home industry, looked upon for many years with scorn, indifference, or as a purely temporary phenomenon brought about by the war-induced shortage of permanent housing, found the financing of its product exceptionally difficult.

In developing the financing phase of the trailer or mobile home industry, I will draw heavily upon the records of Pioneer Finance Company. This company has had continuous mobile home financing experience since 1938. In 1938, new trailers were financed on the following basis: Maximum maturity, 12 months; minimum down payment, one-third; finance charge, 1% per month add-on. Maturities of used trailers, eight months maximum; 40% minimum down payment, and carried an add-on finance charge of 1½% per month. Dealer reserves, and this meant a holdback from the dealer's check, ranged from 5% to 10% of the original unpaid balance before finance charges. No reserves were paid back, which would reduce the dealer reserve below

#### HOME ON WHEELS

Mobile home manufacturers sold \$690,842,000 worth of their products in 1959. This was an increase of 11% over 1958, and a gain of 4% over 1957. In releasing these figures, Earl W. Swett, president of Mobile Homes Manufacturers, said that the figures encompass both temporary and permanent house trailers.

10% of contingency. All contracts were purchased with full recourse. Retail prices of coaches ranged from \$300 to \$1,000. Annual production was about 1,000 units. Those were the good old days; at least they would have been good if capital had been available to purchase all the trailer paper offered.

The first organized effort by the trailer industry to broaden the trailer financing field was the formation in the early forties of Trailer Finance Associates, a group of trailer manufacturers. Each member of TFA desposited \$100,000 as a guarantee against losses. Thus protected, an upstate Michigan bank plunged boldly into the field of trailer financing with great success. For a number of years, this was the major source of financing for the industry.

The success of TFA attracted the attention of financial institutions generally. Numerous small banks and finance companies entered the field on a limited basis, and to the distress of the industry, many for only a brief time. Under the impact of these newcomers, rates began to decline and maturities lengthen, more than keeping pace with the increase in the price of the product. Again, referring to Pioneer's records, by 1955 maturities on new mobile home contracts had gradually lengthened to five years, add-on finance charges were down to 6%, down payments to 25%, recourse had become repurchase, and reserves were being handed back when the individual contract paid off. Similar changes had been made on used mobile home contracts.

#### Retail Sales Hit \$400,000,000

The year 1955 was the first year in which the mobile home industry produced more than 100,000 units, and the first year in which retail sales passed the \$400,000,000 mark. Another boom period for the industry had arrived. The 1956 figures show that volume of units produced had risen to 140,000, and retail sales topped \$600,000,000. Truly, the mobile homes industry had become an important factor in the nation's overall housing picture.

Through 1956, volume of automobile and other types of finance paper available for purchase steadily declined. Again, attention was directed to the mobile home industry. Available statistics were so encouraging that many large banks and finance companies decided to enter the field—this time in a big way, and on what appears to be a permanent basis. Under the impact of big money, the mobile home finance picture completely changed. Today, mobile home financing has become highly competitive, leading to sharp reductions in former profit margins. The bank deal, originally aimed at the leading dealer in the community, offered him money at 4% to 5% add-on at the same time allowing him to charge 6% or 7% to the customer, the difference being available to the dealer as a participation in the finance charge.

Depending upon the stature and bargaining power of the dealer, a portion of this participation was paid over when the deal was bought, the balance when the deal paid off. In addition, for the first time, insurance commissions became available to the dealer. The large finance companies introduced their package deal, also permitting dealer participation in the finance charge. Maturities, which, with the exception of one manufacturer owning his own finance company, had generally been limited to five years, now went to seven. Initially, these extended terms were available only on the higher priced models. Today, the better dealer has no difficulty financing any new unit for seven years, irrespective of price, providing it is to be used for housing. Minimum down payments, which for years had remained at 25%, now, in many cases, have been reduced to as low as 10%.

These developments, which many have tended to view with alarm, are, I believe, a natural result of the growing realization on the part of important financial interests that the mobile home is a permanent part of the housing pattern of this country. Compared with other types of housing, mobile home rates and down payments may still be considered high, with maturities on the short side.

#### Problems in Financing Cited

There are certain problems inherent in mobile home financing. We have found the following four to be the most worrisome.

First, the ability of both manufacturers and dealers to enter the industry with limited capital. Manufacturers always seem able to find suppliers ready to take a chance that a new name will succeed. Likewise, new dealers always seem able to find manufacturers willing to consign merchandise.

Second, lack of previous business experience, and know-how of many manufacturers and dealers. This shows up in such diverse patterns as failure to keep proper books, little or no control of dealers by manufacturers, over-production by manufacturers, and over-stocking by dealers.

Third, long maturities, large balances, and low down payments on retail deals. Experience shows that retail deals with minimum down payments develop little or no equity during the first 18 months.

Fourth, lack of a sufficient number of mobile home parks, properly run and strategically located. This factor alone has prevented countless sales. Several years ago, a few of the industry's pioneers determined to try to break this bottleneck. A company called the Mobile Home Park Development Corp. was formed for the purpose of demonstrating that mobile home parks, suitably designed, supervised, and financed were profitable enterprises, and would qualify as safe loans. No reliable figures on mobile home park costs, income, or net profits were available. This corporation, in its short life, has made numerous park loans. The corporation's experience indicates that well-run, medium sized parks produce from 10% to 16% investment return after taxes and management compensation. Lack of a sufficient number of attractive, well-managed mobile home

parks continues to prevent thousands of people, accustomed to confortable surroundings, from buying mobile homes.

Banks and finance companies might well investigate the profit possibilities inherent in making capital loans to substantial dealers needing funds for park expansion purposes.

Several years ago, mobile home parks became eligible for FHA financing. The Small Business Administration has, in the last two years, made 59 loans to mobile home park operators, located in 20 different states.

#### INDUSTRY ENTERING A NEW PHASE

Following are what I believe to be some logical thoughts on future trends in the mobile home industry and its financing.

It is obvious that the mobile home industry is now entering an entirely new phase. This phase has been aptly coined, The Era of the "Big Few". We have seen it happen in many other industries. Already in the mobile homes field, a few companies are securing the lion's share of sales, making it more difficult for new manufacturers to enter the field, and the small operator to compete successfully against the large, multiple plant manufacturer. In my opinion, this is a development to be watched with great care. Continuation of this trend toward bigness could well result, in the not too distant future, in many rearrangements within the industry, and possibly cause numerous casualties, resulting in orphan mobile home contracts. Competition for the available business, now running at an estimated rate for both new and used mobile homes of around \$1,000,000,000 annually, will tend to increase. While it is probably true that the current tight money situation, limits interest temporarily of banks in mobile home financing, any slack thus created should easily be taken up by finance companies. For example, the intention, announced recently by one of the leading automobile companies to form its own finance company, might shortly release substantial finance company funds for investment in mobile home paper. Another competitive factor is the tendency of mobile home manufacturers, particularly the larger ones, to form their own finance and insurance companies.

The longer-term trend in mobile home financing, points toward longer maturities, lower finance and insurance costs, and smaller down payments. Continuation of this trend may depend, in large part, on the success of the mobile home craftsmen guild and others, to force the entire industry to strive for a set of standards which will, in effect, up-grade the entire industry. These are the areas in which finance companies feel much more at home than do banks.

The mobile home industry has established itself as a major factor in the country's housing field. One out of every nine housing starts in 1959 was a mobile home. Better mobile home park facilities, plus a growing awareness on the part of banking interests, and politicians, of the strength and stability of the industry, indicate continued growth in the years ahead.

#### N.Y.S.S.A. in New Quarters

(Continued from Page 78)

shining with the N.Y.S.S.A. crest. "I hear there was a good tip here last week on the Hupp." (A reference to Hupp Corp., which led the most-active lists recently on the New York Stock Exchange).

As Wall Streeters unfolded crisp napkins (reading faintly, "Consolidated Laundries," also listed on the Big Board), they said such things as: "Hiya, Joe. Sell your Kansas City bonds?" (Joe did—at a 4.95% rate).

Since Wednesday is utility day for the Analysts, the speaker was Allen S. King, president of both Northern States Power Co., and Edison Electric Institute.

Mr. King, talking of such things as kilowatts and solar energy, gave the general impression that the future shines brightly as a light bulb for the nation's electric utilities. He predicted power output will double within the coming decade.

The Wall Streeters who listened to Mr. King's rosy forecasts paid \$2.50 for their lunch.

Over the next year the group will hearken to some 200 lunch-time orators—mostly company executives. Economists also speak here, and the Society even can feast on its own talent when a stock market Analyst peers into the future. (When the market sank last autumn, an august speaker group of three market experts drew an ear-cocked, standing-room-only crowd).

The New York Society was founded in 1937, a year which saw a big stock market break. When it moved to Schwartz's for lunch in 1941, the Dow-Jones industrial average hovered at 120. In the last decade its membership has boomed from 1,500 to 2,500.



L. Haskell Sweet, business manager of *The New York Society of Security Analysts*, is shown in the modern Club head-quarters office, dictating to his secretary, Barbara Turauckas.

# Facts and Figures

FROM THE





## **Annual Report**

#### HIGHLIGHTS

Continental Motors Corporation and consolidated subsidiaries, Wisconsin Motor Corporation and Gray Marine Motor Company, had net sales of \$139,946,152 in the year ended October 31, 1959, compared with net sales of \$131,415,279 in the previous fiscal year.

Net operating earnings were \$2,637,475 in 1959, compared with net operating earnings of \$2,523,032 in 1958. (The reported 1958 net earnings of \$3,536,528 included refunds of, and overprovisions for, federal taxes on income of previous years, in the amount of \$1,013,496.) Branch and distributor operations were highly successful, showing gains over 1958. The company also added to the number and diversity of its manufacturing customers.

On August 1, Continental Motors purchased the Governor Division of the Novi Equipment Company, Novi, Michigan, to assure continuity of supply of the component which that company had provided. This facility has since been operating as the Governor Division of Continental Motors.

It was possible to meet customers' revised delivery schedules out of inventory accumulated prior to the steel strike, but production and delivery schedules, and profits, were adversely affected in the final four months of the year.

More than 125,000 miles have been accumulated to date by the LDS-427 Hypercycle engine, in standard 2½-ton military trucks in military testing.

Three of the Military Standard air-cooled engines developed jointly by the Corps of Engineers and Continental Motors are now in production, and three more are nearing the production stage.

The Aircraft Engine Division expects to register increased sales in 1960, as a result of added models and new customer installations.

The Continental system of fuel injection has proved highly successful, and engines equipped with it will again constitute an important part of this division's output in 1960.

Gray Marine Motor Company had a good year in 1959, and expects another good year in 1960. The outlook for the marine engine industry is good, and Gray is in favorable position, product-wise, to share in the business.

Wisconsin Motor Corporation showed substantial gains in sales and earnings. A new research and engineering building was completed and occupied.

Satisfactory progress was made in the program announced a year ago, under which Wisconsin Motor Corporation agreed to loan money to its Australian affiliate, Ronaldson Brothers & Tippett, Ltd., to improve the latter's operations as a manufacturer under license, of Wisconsin engines.

Continental Aviation and Engineering Corporation again had good sales and earnings.

CAE's J69-T-29 turbojet engine developing 1700 lbs. thrust powers the latest target-missile, the Ryan Q-2C, used in aerial gunnery training, and a version of this engine, de-rated to 1400 lbs. thrust for man-carrying applications, has been announced as the power for the new Cessna 4-place Model 407 jet.

Desirability of establishing overseas branch operations, and of entering into licensing agreements with manufacturers in the Sterling bloc area, is still being explored.

#### STATISTICS

Fiscal Years Ended Oct. 31	1959	1958	195 <i>7</i>	1956	1955
Engine output (horsepower)	12,129,875	10,231,837	10,549,655	10,783,043	13,876,317
Net sales	\$139,946,152	\$131,415,279	\$135,610,890	\$125,116,269	\$145,465,155
Net earnings	\$2,637,475	\$3,536,528	\$3,583,301	\$1,604,924	\$2,502,287
Net earnings per common share	\$0.80	\$1.07	\$1.09	\$0.49	\$0.76
Dividends per share	\$0.60	\$0.55	\$0.35	\$0.25	\$0.70
Current assets	\$59,657,338	\$56,101,397	\$64,454,365	\$59,262,735	\$58,115,700
Current liabilities	\$25,005,195	\$21,289,109	\$30,598,007	\$28,304,638	\$27,553,219
Net working capital	\$34,652,143	\$34,812,288	\$33,856,358	\$30,958,097	\$30,562,481
Ratio of current assets to current liabilities	2.4 to 1	2.6 to 1	2.1 to 1	2.1 to 1	2.1 to 1
Long-term debt	\$2,000,000	\$2,355,000	\$2,480,000	\$2,760,000	\$3,040,000
Property, plant, and equipment (net)	\$16,392,626	\$15,733,097	\$16,223,841	\$16,547,581	\$17,219,239
Stockholders' equity	\$49,936,827	\$49,279,352	\$47,557,824	\$45,129,523	\$44,349,599
Book value per common share	\$15.13	\$14.93	\$14.41	\$13.68	\$13.44

#### **GULF PRESS CONFERENCE**



A service of Gulf Oil Corporation in the cause of creating—through the facts as we see them —a fuller understanding of the oil industry.

## Is there a fuel crisis?

The coal people say there is. And they suggest that Uncle Sam step in. Historically, our fuel industries have grown the freely competitive way. Yet here we have one of them turning its back on that way. If only because the implications reach into *all* business, a few questions should be raised. What, exactly, are the facts? . . .

## Q. What are our fuel problems as the coal industry sees them?

A. According to the coal people, we are in danger of running out of fuel. Any lack of energy, they point out, would threaten our economic development. Always near the surface, of course, is the fact that coal's share of the fuel market has shrunk,

## Q. What does the coal industry want the government to do about it?

A. Coal asks for a single, over all "national fuels policy." In the words of Joseph Moody, president of the National Coal Policy Conference, this would "insure an adequate energy supply for our nation while at the same time promoting the healthy and balanced development of the American economy."

### Q. Precisely what would coal's policy call

A. The Senate resolution coal's spokesmen introduced in August would have the government consider "the optimal allocation of the various fuel and energy resources to their most productive economic uses, including such consideration as the geographic distribution of these resources and the development of balanced and interrelated regional fuel economies."

#### Q. Why wouldn't such a policy be helpful?

A. In the first place, the kind of crisis coal talks about simply does not exist. We are in no present danger of running out of oil, natural gas or coal. And the competition among fuels has actually promoted the development coal refers to.

## **Q.** Do the coal interests really want to see their industry controlled?

**A.** Coal denies the policy would mean controls. But the word "allocation" in that Senate resolution is enough to frighten any businessman, It would probably lead to end-use controls on fuels.

## **Q.** Are any of the other fuel industries for coal's program?

A. Let them speak for themselves. According to Frank Porter, president of the American Petroleum Institute, "We will fight hard to protect our industry and its customers from unjust restrictions." And John Ferguson, executive director of the Independent Natural Gas Association, says the policy "has as a principal purpose the curtailment and prohibition of the use of natural gas."

## Q. What of the consumer? Might he not gain from such a program?

A. Fred Seaton, Secretary of the Interior, offers an answer: "I cannot believe that it would be appropriate or just for the government to distort the picture by preventing the function of normal economic forces. I do believe the consumption of fuels should continue to be determined by such forces as relative costs at specific locations, efficiency of use, dependability of supply, cleanliness, convenience and ease of control."

## **Q.** Are you saying coal would be the only beneficiary of the policy?

A. Yes. And at the expense of oil, natural gas and the consumer. At the expense, in short, of our economy as a whole. Coal has failed to show a truly national

justification for its policy. If there is a fuel crisis here, it is the one coal's policy would bring on.

## Q. But if there is no policy, what of coal's future then?

A. It is true coal's share of the market has shrunk from 70 per cent in 1926 to less than 30 per cent in 1959. But coal has a future. Secretary Seaton cites these figures. The U. S. will use 5 billion barrels of oil in 1975 compared to 2.7 billion in 1955, 19 trillion cubic feet of gas to 9.1 trillion. And we will use 775 million tons of coal to less than 450 million.

## Q. Isn't coal essential to our national security?

A. Of course it is. But no more so than oil and gas. It's worth remembering the oil industry has been cooperating with the government since World War I. A good recent example is the commendation the oil industry earned from our government for cooperating in the 1956-57 Suez crisis to stave off a European oil shortage.

## Q. Hasn't a National Energy Board recently been proposed in Canada?

A. Yes. But Canada is concerned mainly with export and import of natural gas and oil. This demands some international negotiation at the official level. The board could suggest a domestic policy for all fuels. But the validity for such a program north of our border does not automatically extend south of it.

### Q. Elsewhere in the world, what is the trend in fuel coordination?

A. The British attitude is fairly typical. Although Britain faces a glut in coal from state-owned mines, Fuel and Power Minister Richard Wood told the miners in November he "could not encourage any hope of measures to restrict the use of oil or to force fuel-consuming industries to use coal."

We welcome further questions and comment. Please address them to Gulf Oil Corp., Room 1300, Gulf Bldg., Pittsburgh 30, Pa.

## HIGH FINANCE IN EGGS

by Leonard Bernstein

MAN OR HIS ANTECEDENT has been enjoying eggs of one sort or another since the paleozoic period of pre-historic times. Some paleontologists attribute the decline of the dinosaurs to their inability to protect their eggs from the insatiable appetites of the then newly-evolved little hairy mammals. We are still eating a variety of animal and fish eggs. Some of the eggs are rare delicacies. But, today, when we order bacon and eggs, we expect to receive chicken eggs.

The distant ancestors of our present day chickens roamed throughout the jungles of Asia. The principal birds were the red and gray jungle fowl of India; the jungle fowl of Ceylon; the fork-tailed fowl of Java and the East Indies; and the Malay jungle fowl. Of these, the red jungle fowl of India were probably the most important. Just when and where these fowl were domesticated is knowledge lost to antiquity. The Chinese are known to have had hens for at least 3,000 years. The practice of maintaining flocks spread across Asia to the Near East. The Greeks brought hens to Europe itself, and, finally, it was the Romans who carried the tradition into Western Europe. The early American settlers brought hens to the Western hemisphere.

The ancient jungle fowl laid a batch of eggs, anywhere from one to a dozen at a time. Then she hatched and reared her brood—much like the habits of today's wild birds. Occasionally, she might have a second batch. By selection and crossing, we have made the chicken a far different animal from the ancient jungle fowl. Where egg production was the prime interest of the farmer, the best egg layers were selected from each generation. Only the eggs of these birds were allowed to hatch. Eventually, strains of hens were developed that produced fantastic number of eggs.

Some modern hens are capable of laying 350 eggs per year and show no desire to hatch their eggs. When meat production was the aim of the poultryman, the same process developed strains of fleshy birds. The processes of selection and crossing were greatly advanced by scientific discoveries in the field of heredity. Gregor Johann Mendel was the most famous pioneer in this field of the biological sciences. A hundred years ago, scarcely a dozen variety of hens were known. Today, over a hundred strains are known.

Leonard Bernstein has been with Mertill Lynch, Pierce, Fenner and Smith, Inc. since 1951. He has specialized in other major commodities as well as eggs, and has written articles for the Commodity Research Bureau Year Book. Mr. Bernstein holds a master's degree in economics from Columbia University.

Chicken breeds are divided into seven major classes: Mediterranean, Asiatic, English, French, American, Continental, and Indian. The Mediterranean breeds are the best layers. The best known of this group is the Leghorn, which in turn is subdivided into eight varieties. The Leghorn is a relatively small hen, but a very active layer of large eggs. The Plymouth Rock hen was developed in America. These birds are general purpose fowl—good for meat and as moderate layers. Wyandotte is another American-developed bird to fit this category. The Rhode Island Red was developed from birds brought to America from the Far East by the early sea captains. This bird is also an active layer.

#### 1,000 & 1 Ways to Prepare Eggs

Eggs are primarily valued because of their food quality. Egg proteins are easily digested. (Incidentally, a soft boiled egg is more digestible than a hard boiled egg.) They are an excellent source of iron, phosphorus, vitamins A, B, D, and K, and other important nutritional elements. They are relatively inexpensive and therefore can be enjoyed by everyone. And, from the gourmet's viewpoint, there are literally a thousand and one ways to prepare eggs. Roughly, 80% of the eggs produced in the U.S. are consumed in the American home as an egg. Bakeries use about 7%. Hatching takes about 5% of the eggs. About 4% is used for noodles, salad dressings, ice cream, and other food products. Only 1% of the eggs are used industrially—principally in the pharmaceutical and photographic fields. The final 3% is lost because of spoilage or unnecessary breakage.

The U. S. is easily the world's largest producer of eggs. The size of our flocks and their rate of lay dwarfs our nearest rivals, China and Russia. In 1957, the 15 major egg producing countries of the Free World had an output of 127.8 billion eggs, of which, the U. S. produced 60.4 billion eggs. Our closest Free World competitor was the United Kingdom with 10.9 billion eggs. Despite our high production rate, our exports are negligible. Analysis of the egg industry is a domestic affair. The absence of export and import considerations is of great advantage. Pertinent statistics are available with a minimum time lag.

While egg-laying flocks were brought by the early settlers, it was not until the 1860's that the industry began to really develop. The growth of population and the development of large cities provided egg growers with a ready market for their output. The spread of railroads to the mid-west meant eggs could be shipped relatively quickly.

#### The Egg Cycle: Alternate Years

Until the 1930's, the Mid-West was the great surplus producing area. There were hundreds of thousands of small grain farmers. Their wives kept chickens in the backyard to feed their families and pick up a little pin money. In years when egg prices were high, Mrs. Farmer bought a few extra birds. The next Spring, eggs flooded the market and prices were driven down. Then she would not buy any chicks because of depressed prices. As a result, the following Spring egg prices would be high again. The cycle of alternate years of high and low egg prices reigned for many decades. After World War II, grain farming became highly scientific. Farms became larger and larger, and the farm population began to shrink. And since each farmer is entitled to only one wife, the number of backyard flocks began to diminish.

Since the end of World War II, the average number of eggs per hen during April rose from 17.92 in 1946 to 19.90 in 1959, and during November from 8.61 in 1946 to 15.17 in 1959. This meant a gain of 7% in the spring and 76% in the fall. Better housing and the use of antibiotics have enabled chicks to better survive the heat of the Summer and disease. Whereas a decade ago, the flock on April 1st was larger than on the following November 1st, more recently the opposite has

#### TIMELESS EGGS MARCH ON!

Neither history nor a crystal ball will ever solve the legendary question of which came first, the chicken or the egg. But it is interesting to note that both the chicken and egg continue to make news. And last month *Time* made the following observations in connection with the chicken-and-the-egg situation in the Middle East—probably not far from the pre-historic "relics" of the world's first Paleolithic omelette, or Eggs Neanderthal.

The No. 1 poultry farm in the Middle East is Greenleaf Farm & Hatchery in Lebanon's flat fertile valley of Bekaa, where Caesar's colonials once raised wheat. Hatched three years ago by husky Harvard ('48) Lawyer Robert Marshall Stevenson, 37, Greenleaf Farm delivers some 10,000 eggs and 1,500 chickens a day to Beirut alone, is a prime example of how well U. S. farming methods work in underdeveloped countries.

Last week Greenleaf signed a new contract to provide Beirut's airport restaurant with 750,000 fresh eggs a year. A British contractor asked Greenleaf to set up a vast poultry farm in Libya (on a percentage basis). A businessman in Saudi Arabia, anxious to furnish Mecca with fresh eggs, offered Greenleaf a similar contract. At a subsidiary farm near Shiraz, Iran, Greenleaf stepped up production to supply Iran's egg market. This week Greenleaf also made its first shipment of eggs to Aramco [Arabian American Oil Co.] in Saudi Arabia, which now imports them from Australia. Predicted Stevenson: in 1960 Greenleaf will triple its 1959 sales of \$505,000 as well as profits of \$60,000.

-Courtesy TIME; copyright Time, Inc. 1960

been true. The impact of these changes is really amazing and attests to the rapid evolution of the egg producing industry.

#### Production Becomes Big Business

Commercialized egg production has come a long way since 1946. One commercial operation alone is reported to have 300,000 hens. There a few in the 200,000 to 250,000 bird classification, and quite a number in the 50,000 to 150,000 classification. In 1950, 31% of the flock were on farms with 99 or fewer birds; 45% on farms with 100-399 birds; and 24% on farms with 400 or more birds. In 1954, the 99, or less, category dropped to 15%; the 100-399 category slipped modestly to 41%; but the 400 or more group rose to 44%. A further subdivision shows that farms with 3,200 or more birds accounted for 4.6% of the flock in 1950, and 12.1% in 1954.

This year, there will be another farm census and it is certain that these statistics will again be drastically changed. Last year the mortality of small egg producers was accelerated because of low prices. At the same time, the larger operators were able to survive and/or expand because their greater efficiency enabled them to make a profit for the year as a whole and their larger capitalization and credit facilities allowed them to weather the worst period. The advantages of the commercialized farm are several: uniform type and quality, better handling, bulk feed buying discounts, and the ability to sell directly to large outlets.

There is still another operation that has had great success in expanding its proportion of egg production. It is called contract production. Private companies, feed companies, and chain stores are involved in this development. The agreements range from merely buying standard brand-packaged eggs, delivered at the store in the case of some chains, to highly detailed specifications for feed, housings, and type of hens in other agreements. In these latter cases, the contractor supplies the chicks, finances the housing, and supervises feeding, care, and packaging. The individual grower has little freedom in his operation. But in return he is guaranteed a minimum price for his eggs. Incentives are usually paid for better than average grade or output of eggs. Feed companies have an obvious interest in this type of egg production since it provides them with an outlet for their feed. Farms of this type generally range in size from 2,000 birds to 20,000 birds. However, there are a few with 100,000 birds or more.

Distribution has also changed. Here the changes are due to the growth in the average size of the farm coupled with the rise of chain stores and supermarkets. It was inevitable that distribution channels would be shortened. And the net result of these trends toward commercialized, or contract farming, and better distribution has been to put cheaper, fresher, and better quality eggs at the disposal of the housewife.

#### Government Aid Unsuccessful

From time to time, the government undertakes to support egg prices through a dried egg buying program.

The device meets with only moderate success. For one thing, the program is never on a large enough scale to really move prices any great distance. But, the program also tends to be self-defeating. The hope held out to egg growers encourages them to hold on to their flocks by discouraging slaughter activity and increasing hatchery output. The dried eggs that the government buys are distributed to schools and to needy people. This distribution tends to cut into some demand that might have been in the marketplace anyway. Thus, production is increased, demand reduced, and the net effect questionable. The program might eliminate immediate pressures, but it sows the seeds for another disaster later on.

In the early 1900's, Americans ate an average of 300 eggs per year. There had been a gradual upward trend in the rate of consumption until 1945. That year, we ate 402 eggs per person. That was the year that marked the tremendous upturn in the average rate of lay per bird. It was one of those grotesque tricks of fate that just when egg output per bird began to increase, the per capita demand for eggs started to decline. Only the reduction in total flock population has kept prices from suffering more serious declines.

Per capita consumption currently is about 350 eggs per person.

Why the reversal in our desire for eggs? There are several factors involved here. Eggs have been traditionally a breakfast food and Americans are not eating as much for breakfast as they did years ago. The increase in the number of "9 to 5" workers has meant an increase in the number of coffee-and-toast breakfast eaters. With television keeping us up later, we tend to hold to a minimum the time elapsed between rising and reporting to work. A big breakfast takes up too much time for this group. Both a cause and a consequence of light breakfasts has been the development of the American coffee-break. We don't have to eat so much to sustain ourselves until lunch time.

Another factor has been the growth in competitive items since World War II. My grandmother took three hours to make oatmeal, my mother took 30 minutes to make oatmeal, and my wife can prepare oatmeal in 30 seconds. In addition to dry and instant cereals, there are now frozen waffles and easy to mix pancakes. Whereas the typical American mother always served bacon and eggs on Sunday a decade ago, today's Sunday breakfast is more varied.

Still another factor has been the poor publicity eggs received because of their cholesterol content. While there has been no certain proof that animal cholesterol increases the likelihood of heart attacks, many of our older citizens (upon their doctor's advice) have limited their egg consumption. The proportion of folks over 65 is increasing and the limited amounts of eggs in their diets adversely affects per capita consumption. Finally, with living standards rising, those among us who were forced to eat eggs as an inexpensive source of protein, are currently better able to buy meats and poultry for dinner. Since 1945, the per capita consumption of broilers, turkeys, and red meats has increased.

#### Eggs Frozen for Surplus

The tremendous growth in egg production in the Fall has drastically reduced the need to carry surplus eggs from Spring to Fall. Egg output in the Fall is virtually equal to the demand for fresh eggs. Whatever quantities of surplus eggs still needed to be carried are now largely stored in the form of frozen eggs. In the 1945-50 period, eggs stored in their shells on July 1, ranged from 2.3 to 5.7 million cases. Total shell eggs on July 1 have not exceeded 1.5 million cases in the last four years. The lowest total on record was .9 million cases in 1958 and the second lowest was 1.1 million cases in 1959. The frozen egg carryover on July 1st has also declined but much more slowly-from around 5 million cases in the 1946-50 period to 3.4 million cases in 1958 and 3.8 million cases in 1959. Thus, where the Spring carryover was about evenly divided a decade ago, frozen eggs now outnumber shell eggs by almost 4 to 1 on a case equivalent basis. The freezing end of the industry began as a method to salvage cracked eggs. But as freezing equipment became more dependable and relatively inexpensive, the frozen egg industry began to grow. To freeze eggs, they are taken out of their shells. The whites and volks are mixed or separated and then frozen in 30-lb. containers. The chemical composition of frozen eggs is the same as fresh eggs. While the eggs cannot be used as table eggs, they can still be used in cakes, noodles, and mayonnaise. Frozen egg production uses only about 6% of the eggs produced in this country. Since 12% of the eggs produced are used by food manufacturers and industrial users, frozen eggs supply roughly half of their needs.

What outlets are left for shell eggs that are carried into the Fall? The table market is virtually out. The

#### Humpty Dumpty & Hubert Humphrey

Eggs have had a Humpty Dumpty fall from Amer-

ica's diet. What's to be done?
Well, if Senator (and Presidential aspirant) Hubert Humphrey has his way the Federal government will clamp strict quotas on the number of eggs and other poultry products that a farmer could produce in the future. Meanwhile, the Federal Government, in an effort to boost egg prices, has, since mid-January, spent approximately \$4.5 million for dried eggs. But even with this move the Chicago wholesale price moved up only ½c a dozen to 27c

And while such a move would hike egg prices, the egg cutback might have a drastic effect on corn and other feed grains already in bulging surplus. Then, to create a growing demand for eggs, motivation researchers and certain eggheads have teamed up, and dreamed up, a publicity campaign with such "golden" slogans as: "Eggs add appeal at any meal"; "No spare tire from eggs"; and "Control your curves, eat eggs.'

Also, millions of dollars will be spent for bona fide research projects to create additional convenient egg

products.

chain stores and supermarkets only deal in fresh eggs. Fewer groceries are left which will handle storage eggs. I don't think I could buy a stored egg in the Fall, if I wanted one. The only outlet left for storaged shell eggs in the Fall is the egg breaker. They may either freeze the egg, sell it as a liquid egg, or dry it for sale as powdered eggs. Breakers are primarily interested in eggs on a price per lb. basis.

Most of the hatching activity takes place in the Spring. In about 5 months, the pullets begin to lay small eggs. Thus, in the late Summer, when eggs from the Spring hatch first become available, they are abundant and relatively cheap per lb. If stored eggs are cheaper per lb. than small eggs, breakers will buy the stored egg. In the early Fall, medium eggs become plentiful and are the chief competition of the remaining stored eggs. By late Fall and early Winter, large eggs are in abundance and offer the greatest competition. By late January, eggs stored the previous Spring must be fairly well discounted, pricewise, because of loss of weight and quality in order to be broken at all. By January or February, new eggs are being stored for the following Fall.

#### HOW THE EGG MARKET WORKS

The major futures market for shell eggs is the Chicago Mercantile Exchange. On this exchange, eggs are traded in contracts of 500 cases of 30 dozen eggs each—15,000 dozen eggs. The minimum price fluctuation is 5/100c per dozen, equivalent to \$7.50 per contract. A price change of 1c per dozen is equal to \$150 per contract. A maximum daily trading range of 2c above or below the previous day's close is permitted. In other words, prices could fluctuate as much as 4c within one day.

Because storage eggs lose quality over time, the basic grade for delivery in each month varies. Allowances are made for varying qualities. The eggs are re-inspected each month to determine their quality. In order to prevent squeezes, the exchange allows fresh eggs to be delivered. The deliverer receives a 3c premium for fresh eggs delivered on the September, October, and November contracts, and a 2c premium for eggs delivered on the December and January contracts. More detailed information can be obtained from any brokerage house doing commodity business or from the Chicago Mercantile Exchange, 110 North Franklin Street, Chicago, 6, Illinois.

The basic relationship between the cash markets and the futures contracts is relatively straight forward. Eggs eligible for delivery must be stored between Feb. 15th and June 30th. In February, the costs of storing eggs for seven months, commission, and costs to inspect and deliver eggs is approximately 6 cents. Whenever futures are 6c or more above the cash market for deliverable

eggs—U. S. Extras 60% A quality—dealers are willing and able to place eggs in store and sell futures on the Chicago Mercantile Exchange. This transaction is called a hedge. Hedging protects the storer against major unexpected price declines. The protection feature of a hedge enables the storer to receive financing for his storage operation. With each subsequent month, the cost of storing eggs is reduced about 1c.

#### Future in Eggs Described

By July, there is no premium inasmuch as the storing period is over. By September, futures are at least 3c under the price of fresh eggs. This relationship holds because fresh eggs are delivered at a 3c premium over futures. Thus, futures are automatically at a 3c discount under eggs. The discount can be wider. The extent of the discount depends upon the relationship between the fresh price of the standard grade and the price of whatever fresh grade is offering storage eggs the most competition in selling to breakers. In other words, if medium fresh eggs are abnormally depressed relative to large fresh eggs, then futures will also be depressed relative to large fresh eggs.

To those of you who may find all this a little confusing, let me ask what isn't the first time you run across it? Because egg prices are volatile, the risks and rewards of futures trading are greater than in most stocks and commodities. But as I mentioned earlier, statistics are readily available.

A little more than superficial knowledge of the industry gives an individual a fair advantage in turning up with a profit. Another advantage to trading in eggs is the high degree with which egg prices conform to chart patterns. Any speculatively-minded individual, who will make the effort to familiarize himself with the egg industry and the egg futures market, will make a wise investment of his time.

#### Germans Form Analysts Society

Formation of the German Society for Financial Analysts and Investment Managers (Deutsche Vereinigung fur Finanzanalyse und Anlageberatung) has been announced by Dr. Rudolf Buchner, acting executive president.

Michael Hauck and Dr. Buchner will be acting officers until meeting of the first general assembly. Among aims of the new German Analysts Society is the cooperation with "foreign research corporations."

Further details of the German Analysts Society will be published in a subsequent issue of *The Financial Analysts Journal*.



The story of Allis-Chalmers essentially is the story of POWER... the creation of Power, the application of Power, the never-ending search by the Company for ways to improve its own powers of production and thereby better its product lines.

In terms of this pattern, the Allis-Chalmers Annual Report, now being mailed to 63,216 share owners, presents a broad outline of accomplishments of the Company in 1959.

THORIE TO THE	1303	1330
Sales and Other Income	\$543,337,852	\$535,165,825
All Taxes	35,395,615	33,189,603
Earnings	22,864,963	19,657,958
Earnings per Share of Common Stock	2.47	2.34
Dividends Paid per Share of Common Stock	1.25	1.25
Shares Outstanding		
Preferred stock	97,968	103,635
Common stock	9,089,535	8,216,016
Dividends Paid		
Preferred stock	418,359	422,831
Common stock	11,102,190	10,270,016
Share Owners' Investment in the Business		
Preferred stock	9,796,800	10,363,500
Common stock	187,947,298	162,088,166
Earnings retained	146,699,078	135,354,664
Total share owners' investment	344,443,176	307,806,330
Book Value per Share of Common Stock	36.82	36.20
Working Capital	290,967,948	263,557,034
Ratio of Current Assets to Current Liabilities	4.26 to 1	4.82 to 1
Number of Share Owners		i
Preferred stock	802	802
Common stock	62,414	58,347
Employes		
Number of employes	36,130	32,364
Payrolls	196.137.782	172.093,408

ALLIS-CHALMERS serves our nation and the growing world through the many domestic plants and offices shown here—and through the world-wide facilities of Allis-Chalmers International.

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for copies of the Annual Report write — Allis-Chalmers Manufacturing Co. Shareholder Relations Dept. P. O. Box 529, Milwaukee 1, Wis,

## **ALLIS-CHALMERS**



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#### 1960's Annual National Federation Convention

With the 13th Annual Convention of *The National Federation of Financial Analysts Societies* approximately two months away, a preliminary program (dubbed "red herring prospectus") is being circulated by George F. H. Nelson, general chairman.

Scheduled for May 14-18 at New York City's Waldorf-Astoria Hotel, this year the convention host is *The New York Society of Security Analysts*.

In a covering letter, along with the preliminary program, Mr. Nelson

"I think you will agree that we have a most attractive menu of forums and field trips, as well as interesting luncheon and dinner programs.

"Your committees have been able to secure top corporation executives to speak at the forums and to be present on the field trips. Your committee's motto has been: 'The best is none too good for you.'"

Other Convention officials are: Co-Chairmen—Jeremy C. Jenks and Lawrence R. Kahn; Advisory Chairman—Richard W. Lambourne; Arrangements Chairman—Philip K. Anthony; Field Trip Chairman—Edward S. Wilson; Program Chairman—Donald B. Macurda; Ladies' Program Chairman—Mary A. Wrenn; and Publicity Chairman—Edward R. Hold.

The complete preliminary program follows:

#### Saturday, May 14, 1960

- 12 noon-Executive committee luncheon.
- 2:30 p.m.—Executive committee meeting.

#### Sunday, May 15, 1960

- 8 a.m. to 6 p.m.—Registration.
- 9 a.m. to 5 p.m. Two committee meetings.
- 10 a.m.—Society president's meeting.
- 12 noon Society president's luncheon; New York executive committee luncheon.
- 3:30 p.m. to 6 p.m.—Directors meeting.
- 6:30 p.m.—Retiring president's reception and dinner.

#### Monday, May 16, 1960

- 9 a.m. to 5 p.m.—Registration.
- 9 a.m. to 5 p.m.—Trip ticket exchange desks.
- 9 a.m. to 11 a.m. Opening session with prominent speakers.
- 12 noon to 1:45 p.m. Luncheon Armand Erpf and Eugene Banks— "The Stock Market."
- 2 p.m. to 5 p.m.-Forums.
- 6 p.m.—Reception.
- 7 p.m.—Dinner (informal, no speaker).

#### Tuesday, May 17, 1960

- 9 a.m. to 5 p.m.—Registration.
- 9 a.m. to 5 p.m.—Trip ticket exchange
- 10 a.m. to 11:30 a.m.—Forums.

- 12 noon to 1:45 p.m.—Luncheon (informal, no speaker).
- 2 p.m. to 3:30 p.m.—Forums.
- 6 p.m.—Reception.
- 7 p.m. Annual dinner—Speaker of national prominence.

#### Wednesday, May 18, 1960

Field trips — Leave in afternoon for Eastman Kodak.

#### FORUMS

Following is a list of forums scheduled, speakers at each, and their topics:

- A—Chemical Forum Monday afternoon, 2:30-4:30—Chairman: Francis S. Williams.
- Dr. Charles Allen Thomas, President, Monsanto Chemical Company, "Opportunities for the American Chemical Industry Abroad";
- Hans Stauffer, President, Stauffer Chemical Company, "Growth Areas of the Chemical Industry";
- Dr. Augustus B. Kinzel, Vice President, Union Carbide Corporation, "Research in the Chemical Industry".
- B—Steel Forum Monday afternoon, 2:30-4:30—Chairman: Theodore H. Gerken.
- Logan T. Johnston, President, Armco Steel Corp., will cover the commercial aspects of the steel industry;
- 2. Dr. Howard S. Turner, Vice President, Research & Development,

- Jones & Laughlin Steel Corp., will cover the research aspects of the steel industry;
- 3. Open, will cover the overall industry picture.
- C—Public Utilities Forum Monday afternoon, 2:30-4:30 — Chairman: Paul Hallingby, Jr.
- Gardiner Symonds, Chairman and President, Tennessee Gas Transmission Company;
- 2. Elmer L. Lindseth, President, Cleveland Electric Illuminating Company;
- 3. Charles F. Hochgesang, Editor, Electric World.
- D—Aviation Forum Monday afternoon, 2:30-4:30 — Chairman: Selig Altschul. Open.
- E—Retail Trade Forum—Monday afternoon, 2:30 4:30 Chairman: J. M. Galanis.
- 1. C. H. Kellstadt, President, Sears, Roebuck & Company;
- 2. B. Earl Puckett, Board Chairman, Allied Stores Corporation;
- 3. Joseph B. Hall, President, The Kroger Company.
- F-Electrical Equipment and Instrumentation Forum-Tuesday morning, 10:00-11:30-Chairman: Edgar T. Mead, Jr.
- 1. General Electric, "Industrial Automation":
- 2. I. T. & T., "International Communications";
- 3. Farrington Manufacturing, "Office Automation".
- G-Drug Forum Tuesday morning, 10:00-11:30 - Chairman: Ralph W. H. Geer.
- Eugene N. Beesley, President, Eli Lilly & Co., "Ethical Drug Industry and Its Prospects";
   W. Furness Thompson, Vice Presi-
- W. Furness Thompson, Vice President of Research & Development, Smith, Kline & French, "Mental Health";
- Dr. Edward Henderson, Vice Presdent, Medical Affairs, Schering Corp.
- H—Paper Forum Tuesday morning, 10:00-11:30—Chairman: Lawrence K. Gessner.
- George Olmsted, Jr., President, S. D. Warren Company, "Outlook for the White Paper Industry";
- R. Carl Chandler, Chairman of the Board, Standard Packaging Corp., "Outlook for Packaging";
- Harrison F. Dunning, Vice President, Scott Paper Company, "Outlook for the Sanitary Paper Industry".
- I Construction Forum Tuesday morning, 10:00-11:30 — Chairman: Jane L. Brett.

- 1. Walter E. Hoadley, Jr., Economist and Treasurer, Armstrong Cork Company, "The Next Five Years in Housing";
- 2. Cris Dobbins, President, Ideal Cement Company, and Chairman of the Board, Portland Cement Association;
- 3. Open.
- J Surface Transportation Forum-Tuesday morning, 10:00 - 11:30 — Chairman: Herbert F. Wyeth.
- 1. Hon. George Smathers, U. S. Senator, Florida;
- 2. James Ryder, President, Ryder Systems, Inc., "Highways";
- 3. Downing B. Jenks, President, Chicago, Rock Island & Pacific Railroads Company.
- K Non-Ferrous Metals Forum -Tuesday afternoon, 2:30 - 4:30 ---Chairman: C. C. Bailey.
- 1. Frank L. Magee, President, Aluminum Company of America;
- Dr. Joseph Zimmerman, Editor-in-
- Chief, Daily Metal Reporter; 3. F. H. Driggs, President, Fansteel Metallurgical Corporation.
- L Oil and Natural Gas Forum -Tuesday afternoon, 2:30 - 4:30 — Chairman: Frank K. Woodfin.

Mr. Woodfin is planning on having speakers from the major oil companies: one to speak on the outlook and problems of the domestic petroleum industry, and the other on the international petroleum industry, and the forum will be on order of a workshop discussion.

- M-Auto and Auto Accessories Forum -Tuesday afternoon, 2:30-4:30-Chairman: Alan K. Gage.
- 1. B. J. Nichols, Group Vice President, Automotive Sales, Chrysler Corporation;
- 2. Open;
- 3. Open.
- N-Food Forum-Tuesday afternoon, 2:30-4:30-Chairman: Frederick R.
- 1. W. B. Murphy, President, Camp-
- bell Soup Company;
  2. William T. Brady, President, Corn Products Company;
- 3. G. H. Coppers, President, National Biscuit Company.
- O-Insurance Forum-Tuesday afternoon, 2:30-4:30.
- 1. Jack D. Taylor, Executive Vice President, Phoenix Insurance Co.;
- 2. Fraser B. Wilde, President, Connecticut General Life Insurance Co.
- 3. Open

#### FIELD TRIPS

#### One day trips - May 18

1. Bell Laboratories, Summit, N. J. -Alvord D. F. Stearns; Consoli-

- dated Edison Nuclear Generating Plant, Indian Point, N. Y .- Alvord D. F. Stearns.
- 2. Brookhaven National Laboratories, Brookhaven, L. I., N. Y .-Stephen Joseph.
- 3. Esso Research Laboratories, Linden, N. J .- Michael Kourday.
- 4. International Business Machines, Poughkeepsie N. Y.-Alan Poole.
- 5. U. S. Gypsum Plant, Stoney Point, N. Y.-Jane L. Brett.
- 6. American Smelting & Refining, Perth Amboy, N. J.—Ralph Wm.
- 7. Radio Corp. of America Research Laboratory, Princeton, N. J. — Tom Lenagh.
- 8. Union Carbide & Carbon Plastics Plant, Bound Brook, N. J.-Ralph W. H. Geer.
- 9. U.S. Steel Pennsylvania Railroad, Morrisville and Philadelphia, Pa.-James K. Miller.
- 10. Western Union, New York, N.Y. -Maurice Dixon.

Overnight trip — May 18 - May 19 Eastman Kodak, Rochester, N.Y. -Ralph W. H. Geer.

#### LADIES' PROGRAM

#### Monday, May 16

- 9:30 a.m. Registration Waldorf, Hospitality Room-Assignment of TV tickets, programs.
- 12:00 noon Lunch at Downtown N.Y.S.S.A. headquarters.
- 2:30-4:00 p.m.—Tours of N.Y.S.E. and Merrill Lynch, Pierce, Fenner & Smith, Inc.

#### Tuesday, May 17

- 9:30 a.m.-Visit to the Design Center for Interiors-Guided tour of the United Nations - Bus to pier or return to Waldorf.
- 12:30 p.m.—Lunch—program open.
- 2:30 p.m. Informal group visits according to choice: Museum of Modern Art; Metropolitan Museum of Art; Guggenheim Museum.

#### Wednesday, May 18

- 9:00-11:00 a.m.-Breakfast and Fashion Show-Hotel Pierre.
- 12:45-4:30 p.m. -- Circle Line Tour around New York.



Effective February 8, 1960, the Common Stock of this company was admitted to trading on the New York Stock Exchange. The ticker symbol is GBA.

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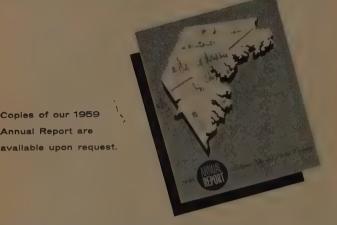


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### BALTIMORE GAS and ELECTRIC COMPANY

## 1959 ANNUAL REPORT HIGHLIGHTS



# show clearly-

## **GROWTH** and STABILITY

1959 was the Company's best year to date, closing out a decade in which our plant investment, our revenues and our net income were all more than doubled. Our sales in kilowatt-hours of electricity and cubic feet of gas reached new highs in 1959, the steel strike having had relatively little effect on our business.

Copies of our 1959 Annual Report are

In November 1959 our common stock was split two shares for one and stockholders were mailed certificates representing an additional share for each share held. On the basis of average shares outstanding, adjusted for the split, earnings per share for the year were \$1.41 compared with \$1.19 in 1958.

Prior to the split, the quarterly dividend on the common stock was increased from 45 cents to 50 cents a share beginning with the payment on October 1, 1959. The new rate is equivalent to 25 cents quarterly, or \$1.00 a year on each split share.

Total operating revenues increased 10%, or \$15,530,000 in 1959, of which \$5,425,000 resulted from the higher electric, gas and steam rates which were in effect the full year as against only part of 1958. Total operating expenses were up \$11,957,000 or 9%, principally because of higher taxes and the cost of supplying the additional electricity and gas sold. Continued improvement in the efficiency of our operations helped temper the effect of higher wage rates and other rising costs.

The amount of new business obtained in contracts with industrial and commercial customers approached the high level of 1958. The number of residential customers added exceeded the number acquired in 1958. The estimated annual revenue to be realized from all new business secured in 1959 is greater than that from any prior year's acquisitions.

The Baltimore area, with its excellent port and transportation facilities, its high degree of economic diversification, and its nearness to the Nation's capital, as well as to other major markets, continues to enjoy sustained industrial growth. This, coupled with a rate of population growth well above the national average, furnishes the basis on which we project continued substantial growth of our Company's business in the years ahead.

	1959	1958
Total Operating Revenues	\$168,958,000	\$153,428,000
Total Operating Expenses	\$141,694,000	\$129,737,000
Total Utility Operating Income	\$ 27,264,000	\$ 23,691,000
Net Income	\$ 20,966,000	\$ 17,925,000
*Earnings per Share of Common Stock	\$1.41	\$1.19
*Dividends Declared	\$0.95	\$0.90
Construction Expenditures	\$ 37,943,000	\$ 39,947,000
Utility Plant at Year-End	\$527,036,000	\$494,318,000
Customers—Electric	535,739	525,193
—Gas	388,765	380,891

\*Adjusted for two-for-one split of Common Shares in November 1959.

heodore Wolfe PRESIDENT

DIVIDENDS PAID ON THE COMMON STOCK CONTINUOUSLY FOR HALF A CENTURY ALWAYS EARNED - ... NEVER REDUCED

Baltimore Gas and Electric Company



## BOOK REVIEWS

INVESTING IN AMERICAN INDUS-TRIES. Edited by Dr. Lester V. Plum. New York: Harper & Brothers. 404 pp. \$6.95.

The investor is not looking for industrial (or Wall Street) adjectives, but industrial facts.

Epitomized in a few words, this is the simple objective of the thirteen contributing authors (all Financial Analysts) who have endeavored "to avoid the technical jargon of Wall Street" in an analysis of today's investment opportunities.

Truly this is a book "primarily directed to the reader who is interested in investing in common stocks or other equity equivalents".

Investing in American Industries is dedicated to the late Helen Slade, "whose pioneering efforts to foster investor education through a broader knowledge of American industry may be rewarded in some small way by this volume". Miss Slade—as she was known professionally-was The Journal's former managing editor.

With the exception of Author William M. Bennett, all twelve other

authors are members of The New York Society of Security Analysts. Mr. Bennett is a member of The Security Analysts of San Francisco. Editor Lester V. Plum is a senior Financial Analyst at Brown Brothers, Harriman & Co., and a member of The New York Society of Security Analysts. He is also co-author of Investment Analysis and Manage-

While this book makes no pre-tense at covering all industries (i.e., the basic automobile industry has been omitted, for with three large companies dominating the field, the investor's choice is limited), it does present detailed discussions of Non-Ferrous Metals (G. Howard Conklin); Steel (William M. Bennett); Business Machines and Electronic Data Processing (George D. Stewart and Jeremy C. Jenks); Chemicals (Walter K. Gutman); and Paper (Lawrence K. Gessner).

Also: Electric Utilities (W. Truslow Hyde, Jr.); Railroads (Herbert F. Wyeth); Petroleum (Edmund G. McElroy and Charles W. Haynie); Aircraft (James J. Quinn); and Insurance (George T. Stewart and Robert Chaut).

Now, while space prohibits a commentary on all industries covered by this extremely interesting and valuable book, we would like to make a few observations.

Of steel, which is the basic component of practically every other "hard core" industry, Author Bennett states: "In the broad sense there is no substitute for steel. Steel stands alone, and over the next 25 years there will not and need not be a substitute". Also: "In both bull and bear markets, the price of steel shares tends to be volatile, and rise or fall by greater percentages than industrial share prices as a whole".

Of business machines and electronic data processing, Authors Stewart and Jenks state: "Electronic

#### Know your financial world

#### Investing in American Industries

ANALYSIS OF OPPORTUNITIES TODAY



Edited by LESTER V. PLUM, Brown Brothers Harriman & Co. "A great deal of useful information... together with expert analysis and illuminating comment." -Benjamin Graham, author of The Intelligent Investor, etc.

### The Federal Reserve System



Edited by HERBERT V. PROCHNOW, Executive Vice President, The First National Bank of Chicago. "Must reading... for an understanding of our banking system and its role in our complex economy."—JESSE W. TAPP, Chairman of the Board, Bank of America. \$6.50

At your bookstore or from HARPER & BROTHERS, N. Y. 16

#### STANDARD BRANDS

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#### COMMON STOCK DIVIDEND

The Board of Directors declared a quarterly dividend of 371/2c per share payable March 15, 1960 to stockholders of record on February 15, 1960.

#### PREFERRED STOCK DIVIDEND

The Board also declared a dividend of 871/2c per share payable March 15, 1960 to stockholders of record on March 1, 1960.

> Joseph H. Hoyt Treasurer

January 28, 1960.

## Pullman Incorporated

- 395th Dividend -94th Consecutive Year of Quarterly Cash Dividends

A quarterly dividend of one dollar (\$1.00) per share will be paid on March 14, 1960, to stockholders of record March 1, 1960.

CHAMP CARRY

Division and Subsidiaries: Pullman-Standard division The M. W. Kellogg Company Trailmobile Inc. Trailmobile Finance Company Swindell-Dressler Corporation Transport Leasing Company



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computor and data processing machines are now accomplishing tasks never before believed possible or practical". Also: "The trend toward still more government activity and control has contributed importantly to the need for more efficient data processing".

In this era of sputniks, atomic energy and guided missiles, Author Gutman makes an interesting outerspace observation: "If space ships were ready to make a practical penetration of the universe, it probably would be possible to sell a thousand tickets at \$10 million each, giving the space market a potential of \$10 billion". He continues: "... the world undoubtedly has a thousand men and women who could afford to pay \$10 million to see the universe, and it is hard to believe they wouldn't want to see it if there was a practical possibility of doing so. Great markets are often created by great emotions"

Of the railroads, which represent such an important segment of American industry, Herbert F. Wyeth clarifies for investors unfamiliar with railroad securities, numerous misconceptions arising from their superficial examination. The author correctly points out the reason for the epidemic of bankruptcies in the '30's, and the impact upon the carriers in varying degree, reflecting, in part, the impact of decentralization and, in part, differing rates of economic growth in separate areas in the United States. Mr. Wyeth's coverage of his subject represents, in the opinion of these reviewers, the most authoritative and objective treatment on the railroads prepared within the past decade.

Reviewed by P.R.B. and W.B.

CORPORATE EARNING POWER AND MARKET VALUATION 1935-1955.

By Sidney Cottle and Tate Whitman. Durham, North Carolina: Duke University Press. 199 pp. \$12.50.

Sir Winston Churchill is quoted to the effect that "the farther backward you can look, the farther forward are you likely to see." In that connection, for those who share, with this reviewer, the conviction that any ability to forecast the financial future rests primarily upon a willingness to study the past as well as the present, this book can be an

FINANCIAL ANALYSTS JOURNAL

analysts Rosetta Stone. In the everchanging world of business, and the never-changing world of sound investment reasoning, certain patterns evolve which, when detected, can provide valuable clues to fruitful decisions.

Comparative analysis is the heart of consistently successful investment action. Intelligent decisions should be based primarily on the relative attractiveness of available alternatives. Because it is generally conceded that investment values are closely keyed to present and future earnings and/or dividend paying potentials, the determination of real earning power is the fundamental tool of the analyst.

Moreover, because the best investment media are sought as of any specific period, it becomes necessary not only to compare the records of the several companies in a particular industry, but to appraise the relative desirability of that industry to others. Furthermore, a corollary variable entering the statistical picture is always the particular cost at which the commitment is undertaken. For example, is 15 times present earnings of 10% on invested capital via stock "A" more desirable than 10 times the 8% available via stock "B"? Does the equation vary at differing stages of the business cycle? How long have trends continued in the past before reversals? Have some industries been able to improve their respective performances in a consistent pattern or have there been surges and sags. Ad infinitum. . . .

In an effort to provide factual background and consistent criteria to use as yardsticks in such calculations, the authors of *Corporate Earning Power* have assembled and computed a wealth of statistical data. Sidney Cottle, senior economist of Stanford Research Institute and Tate Whitman, professor of economics, School of Business Administration at Emory University, are well qualified for the impressive task they set for themselves.

The statistical data presented are calculated in terms of earning power and stock market evaluation of that earning power over a 21-year period for 33 separate industrial groups. Earning power is computed both in relation to total capital invested and as a percentage return on equity alone. The results are most illuminating as they unfold over the years



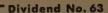
## THIS, TOO, IS NEW ENGLAND



Your plant or business can prosper in growing New England.

STEEL AND CEMENT... Route 128 with its 18 industrial parks and 258 laboratories and plants and its new sister, Route 495... are just two of the fast growing new areas that are providing growing-space for the new industries thriving in New England's vigorous industrial climate.

NEW ENGLAND ELECTRIC SYSTEM
BOSTON 16, MASSACHUSETTS



Interlake Iron Corporation has declared a dividend of 40 cents per

share on its common stock payable March 31, 1960, to stockholders of record at the close of business March 15, 1960.

## CORPORATION

CLEVELAND, OHIO Plants: Beverly, Chicago, Duluth, Erle, Jackson, Toledo

## Harbison-Walker Refractories Company

Board of Directors has declared for quarter ending March 31, 1960 DIVIDEND of ONE and ONE-HALF (1½%) PER CENT or \$1.50 per share on PREFERRED STOCK, pay-able April 20, 1960 to shareholders of record April 6, 1960. Also declared a DIVIDEND of \$.45 per share on COMMON STOCK, payable March 1, 1960 to shareholders of record February 9, 1960.

G. F. Cronmiller, Jr. Vice President and Secretary Pittsburgh, January 28, 1960



Manufacturer of the Broadest Line of Building Products in America

#### THE FLINTKOTE COMPANY New York 20, N. Y.

quarterly dividends have been declared as follows:

Common Stock\* 45 cents per share

\$4 Cumulative Preferred Stock \$1 per share

\$4.50 Series A Convertible Second Preferred Stock

\$1.12½ per share

These dividends are payable March 15, 1960 to stockholders of record at the close of business February 15, 1960.

JAMES E. McCAULEY Treasurer February 3, 1960.

\*126<sup>th</sup> consecutive dividend

and relative positions shift with changing times.

For example, while the industrial composite earnings rate on invested capital climbed irregularly from 7% to 13% from 1935 through 1955, Steel, Paper, Copper, Oil and Rubber outperformed this composite by a wide margin, while on the other end of the scale the profitability dropped approximately 50% during the same period.

Market price of the industry groups is set forth as a series of ratios on price in relation to (1) earnings; (2) dividends; (3) percentage payout; and (4) relationship of market to book value.

In light of the improving rates of return on invested capital, it comes as no great surprise to the reader to find that the equities of Paper, Rubber and Oil were among the leaders in price appreciation over the period. On the other end of the scale, poor market performance of the laggard industries could have been detected well in advance by their significant inability to step up margins in good times.

The authors further prove their astuteness by declining to editorialize on their findings. However, the facts are set forth in a lucid and orderly fashion and the reader is free to interpret them as he wishes.

It is regrettable indeed that Messrs. Cottle and Whitman saw fit to terminate at least the published record of their studies as of the end of 1955. Perhaps popular demand will lead them to present a sequel. The record written in the market place, by the closing years of the Fabulous Fifties, will no doubt be examined by financial posterity with some degree of incredulity.

-Reviewed by D. H. Randell

#### PUGET SOUND POWER & LIGHT COMPANY

Common Stock Dividend No. 66

The Board of Directors has de-clared a dividend of 36c per share on Common Stock of Puget Sound Power & Light Company payable February 15, 1980, to stockholders of record at the close of business January 27, 1980. J. H. CLAWSON President

LEGAL ASPECTS OF FOREIGN IN-VESTMENTS. Wolfgang G. Friedmann (Editor), and Richard C. Pugh (Associate Editor). Boston-Toronto: Little Brown and Company. 812 pp. \$20.00.

With the increasing interest and active participation of investors in foreign securities, it's for certain that questions are bound to arise about legal aspects.

For, while overseas governments (from Argentina to Yugoslavia, a total of 40) are anxious to see outside capital, all have sundry regulations about its investments, and, particularly, about exporting profits.

Seemingly a field for international legal experts, actually there are thousands of foreign investment situations which can be quickly clarified by consulting this well-written and carefully edited reference book.

Admittedly not a book for the average investor (unless foreign investments are "his meat"), this is a book that may well prove helpful in the library of any investment house, banking institution, and/or corporate organization.

To cover the ever-changing investment laws of foreign countries, supplements are planned from time to time.

THE WORLD OF THE WALL STREET JOURNAL. Edited by Charles Preston. New York: Simon & Schuster. 485 pp. \$6.50.

Here is the stored memory of some 70 years of continuous financial and business publishing.

"Hitting the Street" with its first edition on July 8, 1889, The Wall Street Journal has been going strong ever since; and today it's the country's only national daily newspaper. A real growth situation!

And while the introduction, written by Editor Vermont Royster, was probably intended to be just an introduction, his cogent observations create as engrossing reading as any of the articles and editorials from the three score and ten historicallypacked years.

The wide range of subjects, from staid finance to stately high-living. hits the target of excellent reading. And as for browsing through (the subjects are ideally arranged), well, this reviewer "browsed" through midnight, on the day the book arrived, and it was 2 a.m. before he finished "browsing" the second day. Much, of course, happened in our time, and the remainder? — fascinating bits of history.

Founder Charles H. Dow believed and wrote that "business was something more than balance sheets and ticker tape, and that information about it was not the private province of brokers and tycoons". The Wall Street Journal editors since then have upheld his aims while improving upon the theme.

All in all, an excellent book to have around.

THE STORY OF INVESTMENT COM-PANIES. By Hugh Bullock, K.B.E. New York: Columbia University

Press. 305 pp. \$5.95.

Indicative of the growing importance of investment companies is the fact that the Wellington Fund crossed the billion dollar assets mark in 1959.

Wellington is the third mutual fund in history to reach this level, the other two being the Investors Group of Minneapolis and the Massachusetts Investors Trust.

The Calvin Bullock Group (of which the author is a director) ranked ninth in total assets in 1959. And at the rate investment companies are growing, it's anybody's guess who will be "first" in the years ahead. The point to remember is that practically all investment companies have a glowing future—and

this, of course, is the highest accolade for mutual funds' management.

The Story of Investment Companies is more than "just another book" about the subject. It's a combination history, source book and a reliable reference compendium. Incuded, aside from an excellent index, are facsimile excerpts from annual reports of four investment companies.

And, to mention just a few additional types of information available in the Appendix, are: Members of the National Association of Investment Companies; 200 British Investment Trusts; Canadian Investment Companies; 12 Open-End Management Investment Companies; and Closed-End Investment Company Securities.

Summing up: A *must* book for anyone interested in investment companies.

WALL STREET: MEN AND MONEY (Revised Edition). By Martin Mayer. New York: Harper & Bros. 270 pp. \$4.50.

Here's a book with such an excellent format that our great-grand-children could be reading it under the same title, as the "Twenty-fifth Revised Edition". It's a natural; so why not! And in our second reading—the first was in 1955—we found the revised edition equally interesting and informative.

However, Author Mayer has (probably unintentionally) woefully neglected one influential segment of the Men of Wall Street: the Security Financial Analysts. More than 34 years old (the Chicago Financial Analysts, organized in 1925), this group, with thousands of seasoned members, has 23 Societies in the U. S. and Canada, and similar groups are active in London, Paris, Brussels, Rotterdam, The Hague and Frankfurt. And in the environs of Wall Street alone there are more than 2,500 Financial Analysts. Their daily luncheon meetings (now in a new, spacious plush clubhouse, see pages 78 and 79) attract the world's corporate financial and political leaders, all willing and anxious to put their companies and governments to the test of Analysts' most penetrating questions.

Nonetheless, in a day when even local throw-away newspapers compete for our reading time, this is a book written in the argot of 1960. Still, it makes an excellent textbook for colleges and universities—particularly where financial courses are part of the curriculum.

Not only is Wall Street: Men and Money packed with useful and practical facts, but it also includes a bit of the legendary and romantic lore that makes Broad 'n' Wall Streets such a fascinating place to carve a career. And even in the gloomy canyons of the money-changers, man does not (pardon the nostalgia) live by bread alone.

Wall Street is a way of life, and we'll stop trading momentarily to doff our hats to the thirty-threeyear-old author who has caught its significance and so clearly explained its time-honored functions.



## OUTBOARD MARINE CORPORATION

DIVIDEND NOTICE

A cash dividend of twenty cents (20c) per share on the Common Stock of the Company has been declared by the Board of Directors, payable February 25, 1960, to stockholders of record February 5, 1960.

R. F. WALLACE, Secretary

Jan. 22, 1960



#### DIVIDEND NOTICE

Broadview, Illinois—At a meeting of the Board of Directors of Amphenol-Borg Electronics Corporation held today a quarterly dividend of thirty-five cents (35c) per share was declared payable March 30, 1960, to the stockholders of record at the close of business March 16, 1960.

FRED G. PACE, Secretary

February 23, 1960



## Beneficial Reports for 1959



- Service to families reaches record high
- Earnings increased for 15th consecutive year
- Offices in Beneficial System exceed 1200

Nineteen fifty-nine was a banner year for Beneficial. With volume of loans amounting to \$773,877,411, more families were served than ever before. Earnings totaled \$23,445,385, a new high mark and continued the record of successive annual increases for the 15-year span since the end of World War II. Sixty-eight offices were added and with 1210 offices at the yearend Beneficial maintained its position as the world's largest system of finance offices. Service was extended to London, England.

The Beneficial Finance System — dating back to 1914 — makes small loans mainly to families to help them in a practical way during periods of unbalanced budgets.

... a BENEFICIAL loan is for a beneficial purpose.

HIGHLIGHTS	1959	1958
Net Income	\$ 23,445,385	\$ 21,731,164
*Net Income per Common Share	\$2.21	\$2.02
*Cash Dividends per Common Share	\$1.00	\$1.00
Total Assets	\$565,596,495	\$521,551,077
**Amount of Loans Made	\$773,877,411	\$712,861,626
Number of Offices	1,210	1,142
Instalment Notes Receivable (after deducting Unearned Discount)	\$554,371,946	\$509,642,263

- \*Net income per Common Share is adjusted for each year to give effect to 21/2% stock dividend paid January 30, 1960. Cash dividends per Common Share for each year are not so adjusted.
- \*\*Principal only (unearned discount approximating \$61,000,000 and \$40,000,000, respectively, has been excluded).

The information contained herein should be read in conjunction with the financial statements and notes appearing in the 1959 Annual Report to Stockholders. A Copy of the Report Will Be Furnished Upon Request.

Beneficial Finance Co.

Beneficial Building, Wilmington, Delaware

MORE THAN 1,200 OFFICES IN THE UNITED STATES, CANADA AND ENGLAND

#### **Selecting Securities**

Selecting a stock is not just a matter of figures. It involves knowledge and judgment. How aggressive is the company? How good is its manage-ment? How popular are its prod-ucts? What new products are being developed?

The price of a security is nothing more than the collective expression of all the opinions of all the people who are buying or selling it.

Of all the companies whose stocks are bought and sold on the New York Stock Exchange, about 90% paid dividends in 1959.

There are 570 companies listed on the New York Stock Exchange which have paid cash dividends on their common stock for 20 or more consecutive years.

Indicative of the vital importance of the pulp and paper industry to Canada is the fact that the current 20c Canadian stamp depicts a printer standing beside a huge roll of news print as it whirls through a press.

The American dollar, which had domestic and foreign troubles in 1959 is estimated again to be due for a slight battering in 1960. It now takes about \$1.25 to buy what \$1 bought in 1947-49.

#### Quote . . . Unquote

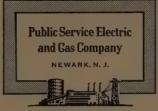
"This has been called the Century of the 'Common Man.' The longer I live in it, the more I wonder whether we are producing the 'Uncommon Man' in sufficient quantity."—Edward Weeks, Editor, Atlantic Monthly.

"If there is any one profession in the world which is assured against technological unemployment, resulting from the invention of new computing equipment, it certainly is the Financial Analyst." — Charles V. Kinter, Duff, Anderson & Clark.

"After leading the world toward a more competitive international trading system for the past 20 years, it would be tragic for the United States again to raise trade barriers."-Eugene Holman, Chairman, Standard Oil Co. (New Jersey).

"Our conviction is that downtown Manhattan [New York City] is and will continue to be the financial center of the country."-David Rocketeller, Vice Chairman of The Chase Manhattan Bank.

"One of the major pharmaceutical firms, I understand, recently discovered two new wonder drugs with enormous potential. The only problem is they can't be marketed yet because doctors haven't found new



#### **OUARTERLY DIVIDENDS**

The Board of Directors has declared the following dividends for the quarter ending March 31, 1960:

Class of Stock		Dividend Per Share		
Cumulative Preferred				
4.08% Series		\$1.02		
4.18% Series		1.045		
4.30% Series		1.075		
		1.2625		
\$1.40 Dividend				
Preference Common		.35		
Common		.45		

All dividends are payable on or before March 31, 1960 to stockholders of record February 29, 1960.

J. IRVING KIBBE Secretary



diseases for the drugs to work on." -William G. Stevenson, International Business Machines Corp.

"The only sound basis for growth is mutual confidence, founded on free exchange of financial information. . . . Once it is established. a flood of private investment abroad —and foreign investment in this country—is almost sure to follow. This will be a genuine investment in peace, because it will create ties of mutual advantage which will provide a permanent common stake in the preservation of peace." — The Journal of Accountancy.

#### ALLEGHENY LUDLUM STEEL CORPORATION

PITTSBURGH, PENNA.



At a meeting of the Board of Directors of Allegheny Ludlum Steel Corporation held today, February 19, 1960, a dividend of fifty cents (50c) per share was declared on the Common Stock of the corporation, payable March 31, 1960 to 'shareowners of record at the close of business on March 11, 1960.

S. A. McCASKEY, JR.
Secretary



#### INTERNATIONAL **HARVESTER** COMPANY

The Directors of International Harvester Company have declared quarterly dividend No. 180 of sixty cents (60¢) per share on the common stock, payable April 15, 1960, to stockholders of record at the close of business on March 15, 1960.

GERARD J. EGER, Secretary

## REPORT ANNUAL

On March 17, 1960, our Annual Report for 1959 was mailed to shareholders of record at the close of business March 2, 1960. Copies are available to others on written request. Please mention this publication and address:

R. A. YODER, Vice-President-Finance

#### **DETROIT STEEL CORPORATION**

BOX 4308, DETROIT 9, MICH.

### RADIO CORPORATION



OF AMERICA
Dividend Notice

The following dividends have been declared by the Board of Directors:

#### First Preferred Stock

87½ cents per share on the First Preferred Stock, for the period April 1, 1960 to June 30, 1960, payable July 1, 1960, to stockholders of record at the close of business June 6, 1960.

#### **Common Stock**

A quarterly dividend of 25 cents per share on the Common Stock, payable April 25, 1960, to stockholders of record at the close of business March 14, 1960.

ERNEST B. GORIN,
Vice President and Treasurer
New York, N. Y., March 4, 1960



#### **American Stock Exchange**

A new rule to keep trading "at home" has been enacted by the American Stock Exchange. Known as Rule 189, this is aimed at preventing unfair accumulations of stock. No specialist may now purchase "directly or indirectly, off the floor of the exchange, any security in which he is registered for the account of a customer." The only exception is in the case of a transaction made to off-set another made in error. A specialist is an exchange member who makes a market in specific stocks.

The New York Stock Exchange has a similar rule that applies to all



#### BALTIMORE GAS AND ELECTRIC COMPANY

Serving one of America's Great Industrial Centers

#### QUARTERLY DIVIDENDS

Dividends of \$1.12½ a share on the 4½% Preferred Stock, Series B; \$1.00 a share on the 4% Preferred Stock, Series C; and 25 cents a share on the Common Stock, have been declared for the quarter ending March 31, 1960, all payable April 1, 1960, to holders of record at the close of business on March 15. 1960.

J. THEODORE WOLFE, President

Dividends paid on the Common Stock continuously for half a century—always earned—never reduced.

### IBM

180TH CONSECUTIVE QUARTERLY DIVIDEND

The Board of Directors of International Business Machines Corporation has today declared a quarterly cash dividend of \$.75 per share, payable March 10, 1960, to stockholders of record at the close of business on February 10, 1960.

C. V. BOULTON, Treasurer

590 Madison Avenue New York 22, N. Y. January 26, 1960

IBM.

INTERNATIONAL BUSINESS MACHINES CORP.

its members and member organizations. They must obtain permission of the exchange before effecting a trade in a listed security off the exchange, either as principal or agent.

For decades the "Curb Exchange"—the name was changed to American Stock Exchange in 1952—was a "seasoning" exchange. That is, it dealt in corporate stocks not large enough to qualify for listing on the "Big Board"—the New York Stock Exchange. Howewver, the A.S.E. believes it does a better job for corporations than its big brother, and it hopes that there will be less moving to the larger exchange in the future.

#### Over-the-Counter Market

The over-the-counter market is not a place, but a method of doing business by private negotiation among security dealers who use the telephone, teletypes and the mails rather than a trading floor to buy and sell securities. It is larger than all the exchanges put together. In fact, there are many brokers who claim that "the best buys are nearly always over-the-counter." This is where growing corporations usually are traded. Then again, there are those who state that "the very worst buys are also available here." It's unlisted trading.

More than 4,500 over-the-counter dealers, who are members of The National Association of Securities Dealers, are registered with the Securities and Exchange Commission. Most of these men serve as lenders, borrowers, investment advisors and

underwriters.

## West Penn Electric Company

(Incorporated)

Quarterly Dividend

#### COMMON STOCK

42½¢ PER SHARE

Payable March 31, 1960 Record March 11, 1960 Declared March 2, 1960

WEST PENN ELECTRIC SYSTEM Monongahela Power Company The Potomas Edison Company West Penn Power Company

February 18, 1960

## So it's 1960-

## what's so great about it?

We've just put together our 1959 Annual Report and it shows a 29.5% increase in earnings over 1958. Naturally, we feel very good about the Sixties. In fact, we almost started this with a heading like, "A Great Future in a Great New Decade."

But, what's so great about a new decade? After all, will many people really start to think differently, or act differently? The companies that made important and sound decisions in the Fifties will be the ones to watch in the Sixties. Which brings us to this prediction: Watch our customers profit in the Sixties.

If there's one thing that characterizes most of the products and services of Westinghouse Air Brake Company, it's the fact that they are big-ticket items. And they are bought by companies that decide that an expenditure *now* will reduce their costs and improve their earnings in the *future*. That's why we can accurately say, watch our customers profit in the Sixties.

## Here is the type of equipment and service our customers buy...

- 1. Control systems that permit automation of train operations over the road and in yards. These systems greatly reduce the cost of moving trains.
- 2. Centralized Transport Control systems for gas and product pipelines. These systems permit fast, safe, completely unattended operation of an entire pipeline from one location.
- 3. Research and development in military, space, and industrial electronics. Thousands of people make up this arsenal of technology.
- 4. Pneumatic Control systems for heavy transportation and production equipment. These systems are safe, rugged, reliable, and cost almost nothing to operate because they literally run on air.
- 5. New 32-ton HAULPAK® air-suspension off-road trucks that haul more weight at less cost than other vehicles in their class.
- 6. Portable Rigs that drill holes five feet

- in diameter and 600 feet deep. Utility companies use them and tremendously reduce the cost of preparing underground storage facilities for liquified petroleum gas.
- 7. New WABCOPAC brake unit for railroad freight cars, designed for use with the new COBRA® composition brake shoe, is simple, light and easy to install and maintain. Exceptionally attractive for high mileage special purpose cars such as piggyback, fast merchandise, etc.
- 8. 1,200-cubic-foot rotary portable air compressors, the largest made in the

country. They are used to speed pneumatic drilling operations.

These are only a few. If you'd like to read more about the products and services bought by companies with great futures, send the coupon for our annual report. It will give you some interesting clues on how other companies can profit in the Sixties, and it will tell you about us in the Fifties. How we grew from a one-industry business, to a large, diversified organization serving many markets.

Incidentally, watch us in the Sixties,



Three Gateway	Air Brake Compa Center	any	
Pittsburgh 22, P			
Please send a co	py of your 1959	Annual Report	
Name			
Name			

Air Brake Division • Union Switch & Signal Division • Industrial Products Division • Le Roi Division • George E. Failing Company Le Tourneau-Westinghouse Company • Melpar, Inc.



## Westinghouse Air Brake Company

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#### THE SCIENTIFIC SIXTIES

The 1960's have been predicted to be "fabulous"—"dynamic"—"golden"—"surging", etc. We prefer to call them the Scientific Sixties because technological progress should be the outstanding accomplishment of the next decade. Some sources have estimated that 50% of the things we will use and buy in 1975 are not produced or even known today. This will create tremendous opportunities for alert investors with good sources of information. It will be a viciously selective ten years when it will be vitally necessary to keep abreast of scientific developments. The industries expected to grow the most in the next 10 years are: missile, drug, atomic energy, business equipment, airline, electronic, electric equipment, aluminum, paper, plastic and natural gas.

—Ralph Rotnem, Harris, Upham & Co.

## **AREA RESOURCES BOOK**

New book explains why the area we serve offers so much opportunity to industry.





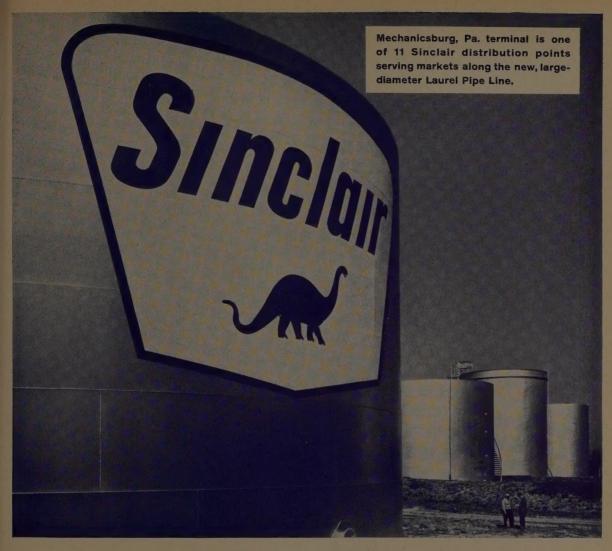
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## **Battle Station in the War on Costs**

No group has waged more vigorous battle against the rising cost of living than the oil industry. Witness that in 1959 the average price of gasoline, exclusive of tax, was less than 6 per cent higher than it was in 1949, while consumer prices generally rose 23 per cent over that period.

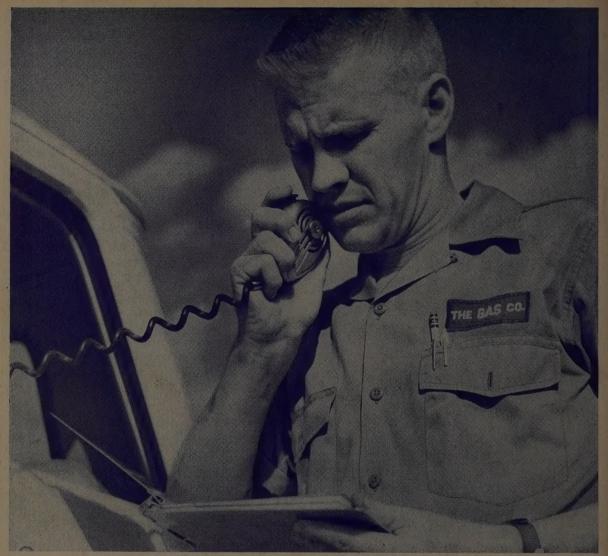
A key weapon in battling costs is efficient distribution. The Sinclair organization continually improves—and is noted for—its ability to move products to market at minimum cost. One of the most extensive pipeline systems connects six modern refineries with the most populous markets. Tankers and barges make large-volume deliveries. And 1,629 Sinclair bulk distribution stations—which can stock 720 million gallons—

provide the flexibility of storage needed to serve economically a market where demand swings sharply with the weather.

Dealers and distributors trading under the dinosaur symbol of fine oil products know a dependable, low-cost distribution system sustains them in the market place. In the battle against costs, Sinclair has powerful ammunition.



A Great Name in Oil



# More people than ever share in the growth of the Columbia Gas System

In 1959 over 3,200,000 homes and businesses used an alltime high of 736 billion cubic feet of natural gas delivered, directly and indirectly, through the Columbia Gas System — 36 billion more than in 1958.

Despite the prolonged steel strike the System delivered more gas than ever to the growing industrial complex it serves in 7 states—New York, Ohio, Pennsylvania, Kentucky, West Virginia, Virginia, and Maryland. The number of owners of the System grew, too.

The number of owners of the System grew, too. Thirty-two thousand more of them – 182,545 in all – were listed as stockholders of The Columbia Gas System, Inc. at year's end.

And the men and women who work for the Columbia Gas System, including those who operate the System's pipeline from the Gulf Coast to the Kentucky-West Virginia border, shared \$79,000,000 in wages and benefits during the year.

Here is evidence of the growing demand for a vital public service—the production, transportation and delivery of natural gas—on which so many people depend for their daily comfort, convenience and economic betterment. For the complete story on the growth of the Columbia Gas System—and its continuing investment in better service for more people—write for your copy of our 1959 Annual Report.

SYSTEM, INC.

COLUMBIA GAS SYSTEM SERVICE CORPORATION
COLUMBIA THY STORES AND THE STORES AND THE



CHARLESTON GROUP: UNITED FUEL GAS COMPANY, AMERE GAS UTILITIES COMPANY, ATLANTIC SEABOARD CORPORATION, COLUMBIA GAS OF KENTUCKY, INC., VIRGINIA GAS DISTRIBUTION CORPORATION, KENTUCKY GAS TRANSMISSION CORPORATION. . COLUMBIA GROUP: THE OHIO FUEL GAS COMPANY, THE OHIO FUEL GAS COMPANY, THE OHIO FUEL GAS COMPANY... PITTSBURGH GROUP: THE MANUFACTURERS LIGHT AND HEAT COMPANY, COLUMBIA GAS OF NEW YORK, INC., CUMBERLAND AND ALLEGHENY GAS COMPANY, HOME GAS COMPANY... COLUMBIA GUILT FRANSMISSION COMPANY... THE PRESTON OIL COMMISSION COMPANY... THE PRESTON OIL COMMISSION COMPANY... THE PRESTON OIL COMMISSION COMPANY... THE PRESTON OIL COMPANY.